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Genito-Urinary Diseases and Syphilis

COMMON DERMATOSES AFFECTING THE PENIS.

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In a discussion of the dermatoses of the penis, it is necessary to consider the glans penis and prepuce separately from the sheath of the organ, as the lesions of the same disease differ from each other according to their distribution.

The more common acute conditions which we find upon the glans penis and mucous surfaces of the prepuce are scabies, balanitis, herpes, syphilides and chancroid.

Scabies presents a polymorphous picture, vesicles, pustules and papules. The earliest lesion is the burrow which appears as a tortuous line, red or in uncleanly individuals, dark in color, from one-thirty-second to one-sixteenth inch in length. The burrow frequently terminates in a vesicle, which from secondary infection, may become pustular and obscure the entire burrow. The older lesions are papular or papulo-pustular, presenting themselves as round, elevated, dusky red papules, on the surface of which the normal lines are obliterated. The lesions are multiple, varying in number from two or three to a great many. Treatment consists in daily inunctions of a ten per cent. sulphur ointment for five days, repeating the course of inunctions fifteen days later to destroy the second crop of parasites incubated from the earlier eggs.

Balanitis may be due to one of several causes: (1) Simple, due to uncleanness and resultant decomposition of smegma; (2) the circinate-erosive type, due to a specific spirillum, the type being quite rare; (3) due to too vigorous use of antiseptics, especially phenol and the mercurials; (4) secondary to vegetations, syphilides, chancroid, gonorrhea.

The simple balanitis or balano-posthitis is characterized by a profuse, foul smelling discharge; the epithelium of glans and prepuce is red, tender and edematous. In severe cases the swelling may cause phimosi.

Treatment consists in a local bath of hydrogen peroxide, followed by thorough drying; the whole surface is then to be sponged with a two per cent. solution of silver nitrate, dried and a dusting powder of thymol iodide applied. The patient is directed to clean with warm water, dry, and use the dusting powder after every urination. As a rule a cure is effected in from twenty-four to forty-eight hours. In recurrent cases circumcision is indicated. Secondary types are treated in the same manner but the time of recovery depends upon the cause.

Herpes progenitalis is a common occurrence. If seen early the diagnosis is simple, the lesion consisting of grouped vesicles upon an erythematous base. The patient complains of an intense burning and itching. On the glans penis, however, the vesicles rarely remain intact, and when seen the eruption usually consists of a group of pin-head size erosions upon an inflamed base. The treatment is the same as that laid down for balanitis which frequently complicates a widespread herpes. Often the erosions become infected and such lesions should not be confused with chancroid. In the latter there is no characteristic grouping and the loss of tissue is more extensive.

The syphilides commonly seen are chancre and moist papules. The chancre appears in from fourteen to thirty days after inoculation. The usual site is the corona. If uncomplicated it appears as a red elevated, flat, non-exudative papule. The surface usually becomes rapidly macerated, leaving a small ulceration. This enlarges from day to day to attain its maximum size in about two weeks. During this time it becomes indurated at the margins and base, giving the impression of a button or disc of cardboard beneath the skin. The lymphatics become indurated to feel like a heavy cord, and the glands in the groins become painlessly enlarged and indurated. The chancre is subject to great variation; it may be single or multiple. A common differential point made between chancre and chancroid is that the former is single and the latter multiple. The reverse is found just as frequently in my experience. The patient may have a chancre develop wherever an abrasion exists and such abrasions are very often multiple. A case now under my observation had four chancres on

the sheath of the penis and two on the glans. Frequently the chancre is complicated by staphylococcal or Dühré bacillus infection and in these cases the picture is sometimes very obscure. An ultramicroscopic examination should always be made to determine the presence of *spirochaeta pallidum*.

Moist papules are a part of the general eruptive stage of syphilis, and appear as sharply circumscribed, elevated, flat, indurated, exudative papules, usually along the corona.

Chancroid appears in from two to ten days after inoculation as a vesico pustule, which very rapidly breaks down, leaving a punched out ulcer. The ulcer enlarges peripherally, the border being typically undermined. There is profuse, purulent discharge which may cause other lesions by auto-inoculation. Suppurating bubo is a frequent sequel. Treatment consists of early and thorough cauterization with pure phenol, followed by wet dressings.

The chronic dermatoses which we find are few in number. The two common conditions are vegetations and eczema; the less common diseases are lichen planus and epithelioma. Also scabies may be seen as a chronic papular dermatosis.

Vegetations or venereal warts are extremely common along the balano-preputial sulcus, not only in the uncircumcised but in those who are scrupulously clean. They start with one papillary overgrowth which soon divides; other papillae develop and likewise multiply until the whole growth is cauliflower-like. There may be one or several of these growths or they may be so numerous as to entirely cover the glans penis. The consistence is usually soft but at times they become horny. A less common type of verruca is the flat type similar to that seen in children on the backs of the hands and wrists. The best treatment is removal by means of the sharp curette, followed by cauterization of the base with fused silver nitrate, to control bleeding, and subsequent application of thymol iodide dusting powder. Balanitis and phimosis may be caused by the presence of vegetations.

Eczema is usually of the weeping type and old men with phimosis are especially prone to suffer from it. In such cases circumcision is indicated as epithelioma may develop due to the continued irritation. Drying lotions and powders usually control other types.

Lichen planus is a part of the general dermatosis and presents itself as a linear or irregularly shaped patch of a violaceous color caused by the coalescence of smooth, angular, elevated papules. Epithelioma is rare and may start with a papillary overgrowth, vegetation, or sluggish ulcer. It is of rather slow evolution. Radical operation is demanded.

We next deal with diseases of the sheath of the penis, and here we find the acute conditions to include scabies, herpes, chancre, chancroid and dermatitis venenata.

The lesions of scabies are much the same as those on the glans penis, the vesicle and vesico-pustule being more common than the papule; all primary lesions may, however, be obliterated by abrasions due to scratching.

Herpes is common and here we usually find the vesicles unbroken. Some men are especially prone to attacks of herpes on the sheath of the penis, and it is sometimes possible to determine a definite etiological factor, such as, intercourse, rheumatism, diet, gastro-intestinal disorder, gout, etc. Local treatment consists in the application of a drying lotion, such as calamine, lotio nigra, lotio plumbi et opii, etc. General treatment should be directed toward the correction of any etiologi-

cal factor which may be found. Herpes zoster may appear on the penis as a part of a more extensive eruption.

Chancre is of frequent occurrence and oftentimes attains a greater size than chancre of the glans penis; its evolution is similar to the latter but at times the induration seems more superficial, and on account of the looseness of the integument, a certain amount of undermining at the margin is common.

Chancroid is not so common, as it is upon the prepuce and glans. Its character is the same, although undermining may become quite extensive.

Poison ivy is nearly always seen upon the penis when seen elsewhere, due to handling of the organ when the rhus poison is still fresh upon the hands. There is a marked inflammatory edema accompanied by intense burning and itching. Vesiculation is not so common as it is upon the hands. Wet dressings of lotio plumbi et opii give as much relief as anything. One case in my experience was caused by the direct application of the plant as a substitute for toilet paper. The penis, scrotum and anus were enormously swollen and inflamed, so much so that the patient was bedridden for several days.

Chronic diseases of the sheath of the penis include the various syphilides, psoriasis, seborrhoeic eczema, neoplasms and pigmentary disorders.

Syphilis as a part of a general macular or papular eruption is easily recognized. The later lesion of the serpiginous and cuniculate types are not so common and are confusing unless carefully examined. I have seen several cases in which such lesions had previously been diagnosed as ring worm. In the first place one will note that the center has not been the seat of the eruption. The ring is composed of deep seated papules, dusky red in color, sharply circumscribed. These papules coalesce to form the ring or serpiginous outline; they may be smooth, scaling or superficially ulcerated. Similar lesions may be found on other portions of the body or the lesion on the penis may be solitary.

Gumma is rare and resembles gumma elsewhere, a sharply circumscribed, punched out ulcer.

Psoriasis may be a part of a general eruption in which case it is easily diagnosed, or it may be localized to the penis, inguinal and public regions, and scalp. In this type the scaling is finer, there is less thickening and the base is paler than in psoriasis on the extremities. Mild tar ointments or ammoniated mercury are indicated.

In extensive cases of seborrhoea one frequently finds the penis and pubic region affected. The yellowish, greasy scaling with a slight or greater degree of eczema makes the diagnosis simple.

Sebaceous cyst and fibroma are easily recognized and removed surgically. Both are quite common.

The penis is a favorite site for vitelligo. This disease is merely a medical curiosity and treatment is of no avail. On the other hand one very frequently finds a hyper pigmentation the cause of which is not known. In extensive cases of pityriasis versicolor the penis may be affected. The treatment consists in the application of a saturated solution of sodium hyposulphite.

St. Clair Thompson of London claims that suppuration of the accessory sinuses may produce chronic conjunctival blepharitis, phlyctenular keratitis, diminution of the field of vision, asthenopia, scotomata, photophobia, dilatation of the pupil, blepharospasm and ptosis Iritis, cataract (Ziem), hemorrhagic retinitis (Kuhnt) and glaucoma, he says have been observed.

CHRONIC PROSTATIS.

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One of the most important complications caused by gonorrhea is a chronic inflammation of the prostate gland for the reason that the gonococcus, with all its infectious qualities unimpaired, may be retained for years and its presence unsuspected. Not only is it of moment on account of the danger of infection to unsuspecting wives, but also from the profound disturbance which it causes to the nervous system of the patient.

Prostatitis is a very frequent complication and in fact occurs in nearly every case of gonorrhea which becomes chronic. It also follows frequently as a result of masturbation and habits of withdrawal. It is always caused by the infection of the prostate with microorganisms of some kind, usually the gonococcus, but staphylococci, streptococci and colon bacilli may act as exciting causes or may induce a secondary infection after the gonococcus has been eliminated.

The origin of chronic prostatitis differs according to its etiological factor. When it is due to an acute gonorrhea it usually begins as an acute catarrhal prostatitis and becomes chronic, but when caused by sexual abuses it begins as a chronic posterior urethritis which extends through the ducts and tubules to the prostate gland.

A few autopsies have been made on patients who died from intercurrent diseases and an opportunity has been given to study the findings in the prostate post-mortem. The prostates have been found to be irregularly enlarged and when the surface was cut the color was of a pale dirty brown and they were softer and juicier than normal. On inspection they were found to be infiltrated with indurated bands of newly-formed

fibrous tissue. The microscopical appearances have also been carefully studied and the essential change under the microscope is found to be a dilatation of the prostatic tubules which are found converted into cystic cavities and filled with a turbid slimy fluid. These dilated cavities of the tubules harbor the gonococci for years and their escape into the urethra causes exacerbations and danger of infection. All the tubules may be affected, but usually the process is limited to localized areas in the gland. The other parts are found to be normal. The ducts and mouths of the tubules are dilated and kept open and gaping by a round-celled infiltration which surrounds and stiffens them; they are filled with plugs of secretion which when extruded in the urine have the characteristic appearance of tadpoles or carpet tacks and are known as "Fürbringer's hooks." Occasionally the ducts and mouths of the tubules instead of being open and gaping are closed and the secretion does not run out freely until massage of the prostate forces the ducts open. The intertubular substance, composed of fibro-muscular tissue, is seen to be infiltrated with broad tough bands of connective tissue, which after contraction sets in, causes the prostate to feel harder than normal.

As chronic prostatitis is always complicated by a posterior urethritis, the symptoms arise from both conditions. The local symptoms consist of frequent and urgent urination; the sexual symptoms are partial or complete impotence and the mental symptoms are grouped under the term of sexual neurasthenia. The patient is profoundly melancholic, complains of loss of mental and bodily strength and suffers from hypochondria, irritability of temper, depression of spirits, inability for prolonged mental effort, forgetfulness, etc. One symptom which only occurs in about 15 per cent. of the cases, however, points to the involvement of the prostatic tubules, and that is the prostaticorrhea, which may occur with defecation or with urination.

In making a diagnosis of chronic prostatitis the clinical history of prostatitis, vesiculitis and chronic posterior urethritis is similar and the differential diagnosis can only be made by a careful examination of the patient.

The two means of diagnosis which we have at hand, are palpation of the prostate through the rectum and the microscopical examination of fluid expressed through the prostate by massage. On palpation through the rectum the whole organ may be found to be enlarged and tender or only one lobe may be enlarged. Sometimes only a few scattered tubules are found, giving a shot-like feeling of nodulation. As a rule, the secretion is more easily expressed than normally. In the later stages of formation of fibrous tissue in the intertubular substance, the prostate is only slightly enlarged, but its consistency is much harder than normal.

To distinguish between prostatitis and seminal vesiculitis by rectal touch is frequently very difficult. The seminal vesicles are often involved at the same time and are imbedded in and surrounded by a mass of inflammatory infiltration which obliterates their outlines.

The differential point which was brought out by Dr. H. E. Fraser of Brooklyn is the following:

If no perivesicular infiltration is present the sharp outline of the upper margin of the prostate can easily be felt. If perivesiculitis has occurred and the lower part of the prostate is imbedded in the inflammatory exudate, the upper

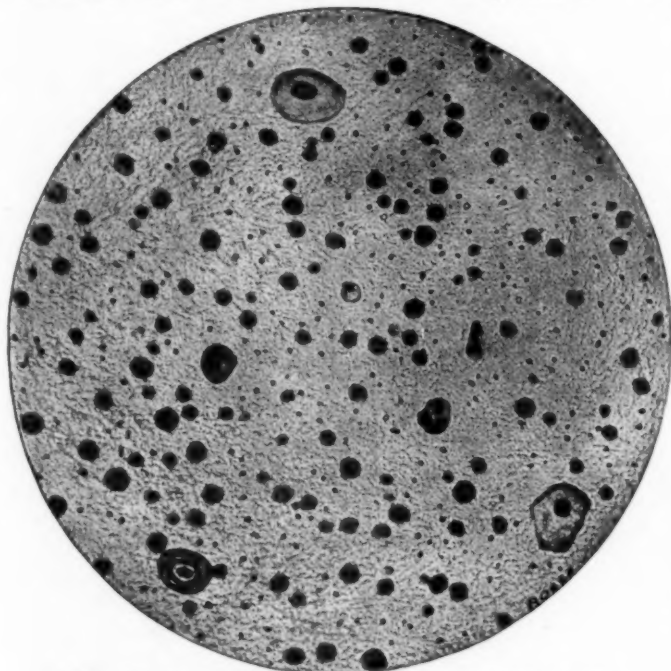


Fig. 1.—Normal prostatic secretion. Lecithin bodies abundant, granular phosphates, an occasional leucocyte, an amyloid body, and a few squamous cells from urethra or bladder.

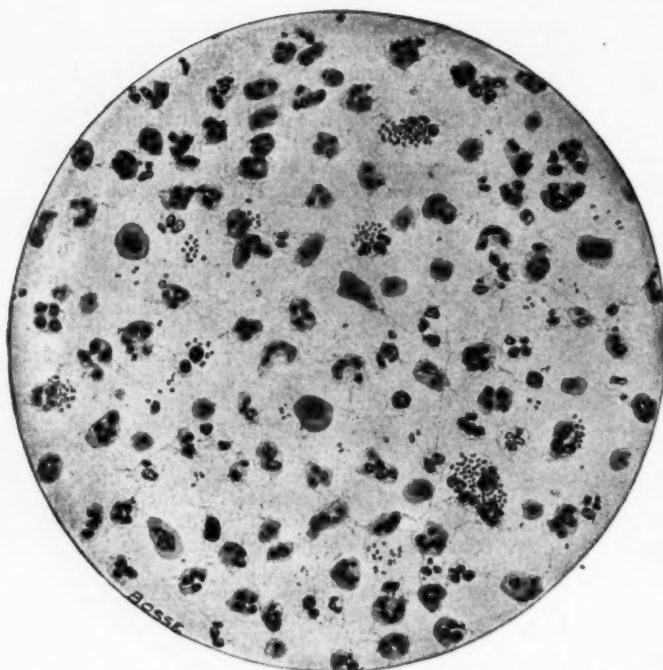


Fig. 2.—Secretion from chronic gonorrheal prostatitis, containing pus cells and gonococci, extra- and intra-cellular.

margin of the prostate cannot be felt and the examining finger glides over the upper border along the posterior surface of the vesicles without perceiving the furrow indicating the line of demarcation between the prostate and vesicles.

The writer, however, never makes the diagnosis of prostatitis by feeling the prostate through the rectum alone, for too many cases of chronic prostatitis will show no change on rectal touch and occasionally an old inflammation of the prostate, which has caused changes in the consistency of the gland, will give rise to an abnormal feeling of the prostate and yet the disease is a thing of the past.

The only absolute method of diagnosing inflammation of the prostate is by means of microscopic examination of the fluid expressed through the prostate by massage. With the microscope can we not only gauge the severity of the inflammation but also judge of its progress and its degree of infectiousness and also decide when it is healed. Microscopic examination of the secretion also gives us a line on the length of time to continue treatment and the time when interruptions of the treatment become necessary.

The simplest way of obtaining the prostatic secretion for examination consists in allowing the patient to urinate, thus washing out the urethra and then with the patient in the leap-frog position, the finger in the rectum massages or expresses the prostatic contents and the secretion is collected on a glass slide as it drips from the meatus.

If the patient has an acute or chronic prostatitis, microscopic examination of the pus will show large quantities of pus cells and frequently gonococci. As the case improves the gonococci diminish and disappear and the pus cells become fewer in numbers. As the case is near its recovery lymphocytes make their appearance as well as the polymorphonuclear cells, and lecithin, always absent in an inflamed prostate, reappears.

The point, of course, of supreme importance in the cases of chronic prostatitis, is whether or not the gonococci are still present. The general feeling among genito-urinary men is that even though a number of repeated examinations fail to show gonococci, still so long as there is pus in the expressed secretion the patient cannot be regarded as cured. The gonococci may be present in the secretion, but, like the proverbial needle in the haystack, they cannot be found on the microscopic slides, so that the general rule adopted is not to consider a patient cured of prostatitis as long as pus remains in his secretion. Even after the gonococci have disappeared an infection with other organisms, as the colon bacillus or streptococcus may prolong suppuration.

Von Nothhaft's statistics are significant. He examined 120 patients and found gonococci in 73 per cent. in the second half year, 50 per cent. in the third half year, 18 per cent. in the fourth half year and 6 per cent. in the third year. Other organisms made their appearance in the second half year.

To decide the presence of gonococci the attempt has been made to cultivate them in artificial media. This is found to be unsatisfactory because very often the gonococcus does not grow even on hydrocele agar, which is its favorite culture medium, and a negative culture does not necessarily mean an absence of the gonococcus. For determining their presence or absence provocative instillations of nitrate of silver, 5 grains to the ounce, followed in twenty-four hours by prostatic massage, often bring out the gonococci if they are present.

Instead of obtaining the urine on a slide, the expression urine test can be made use of. This is made by allowing the patient to pass some urine to wash the urethra, then massaging the prostate with a full bladder

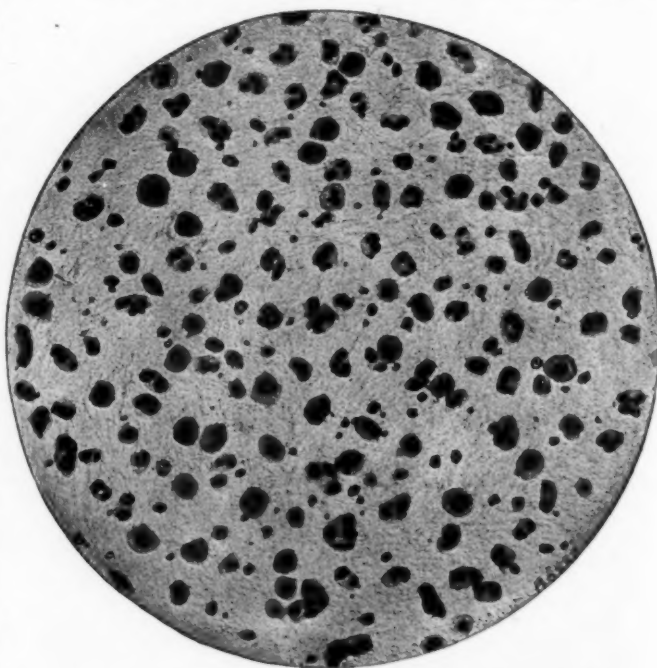


Fig. 3.—Secretion from chronic gonorrheal prostatitis. Large amount of pus; many mononuclear cells; no organisms.

and the patient voids the expressed contents together with the last urine. To the naked eye the urine appears milky from a mixture with prostatic fluid. When the prostate is diseased, flakes and masses of caked secretion and pieces of heavy shreds are often expressed and sink to the bottom of the tube, but even in the presence of disease the expression urine is sometimes clear. The characteristic comma or tadpole-shaped hooks described by Fürbringer are generally present and in many cases of prostatitis a chronic inflammation of the posterior urethra exists and an examination with the endoscope shows the posterior urethra purple, red, swollen and bleeding freely, and the colliculus large, purple in color and very prominent.

The prognosis in cases of chronic posterior urethritis is favorable, but it requires from three to six months' treatment to effect a cure. Improvement is shown by the prostate growing smaller and softer, a diminution of pus cells and the reappearance of lecithin bodies, while the mental symptoms and reflex pains are lessened.

It is important in the treatment of these cases to improve the general health by means of diet, exercise and general hygienic treatment. The chief means of directly influencing the prostate consists in massage through the rectum two or three times a week. The stagnating contents of the tubules are thus expressed and collections of pus are emptied, the circulation is improved and the inflammatory products are absorbed. The massage should be employed every two, three or four days and then stopped. The writer finds that patients improve up to a certain point under massage and then improvement ceases and nothing more can be accomplished with it for the time. After a couple of months when the improvement seems to have come to a standstill, the treatment should be stopped and the patient should have absolute cessation of all treatment for a month. Not infrequently the writer has found at the end of a month's rest patients would report and the microscope would show freedom from pus in the prostatic secretion. This fortunate result is not always attained and frequently another course of prostatic massage has to be instituted for six weeks, to be interrupted after a time for another period of rest.

Of all means of clearing up the last remnants of inflammation, an outdoor life, an ocean voyage or a month's camping in the woods is the best means of getting rid of the last traces of pus. Where this is not possible, however, and the prostate feels normal to the touch but a little pus still remains, Frank advises dilatation of the posterior urethra with his irrigating dilator.

Every prostatic massage should be preceded and followed by an irrigation of the urethra and bladder. The massage should be conducted with the patient's bladder full. The patient voids the contents of the bladder and expressed secretion after the massage is finished. This modification of technic is adopted to prevent the occurrence of epididymitis which is more likely to happen if the irrigation is not used until after the massage is finished. It is suggested that the massage causes an opening and shutting of the ejaculatory ducts and gonococci, which have been expressed into the posterior urethra, are sucked in by this opening and shutting and carried through the vas to the epididymis. In point of fact since adopting this technic epididymitis is a rare complication occurring as a result of prostatic massage.

As an adjuvant to the massage the application of dry heat by means of Arzberg's rectal psychrophor and the hypodermic use of the gonococcus vaccines have seemed to the writer to have aided in clearing up some particularly obstinate cases.

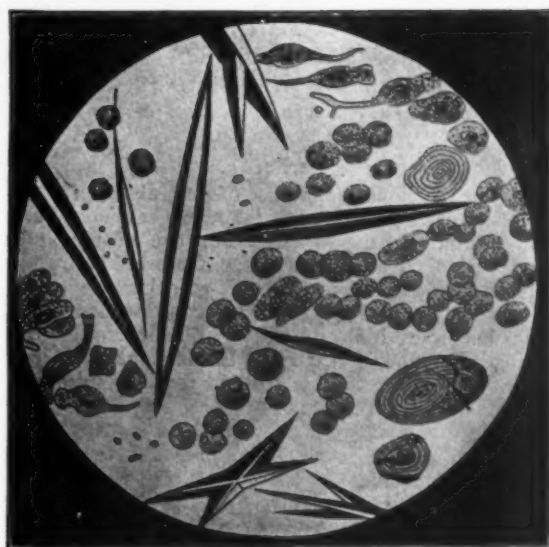


Fig. 4.—Diagrammatic representation of prostatic secretion. Böttcher's crystals, amyloid bodies, pus-cells and epithelium from prostatic ducts.

In closing, the writer would like to call attention to the two most important things in the treatment of diseased prostates:

First, to control the progress of the case by frequent microscopic examinations; and

Secondly, the intermittent massage of the prostate; that is, the massage of the prostate with periods of rest every two weeks.

The use of the microscope will prevent such frequent mistakes as massaging the prostate when the entire trouble is restricted to a soft stricture of the urethra or an infection of Morgagni's crypts, and it will also prevent the protracted massage long after the patient is cured and the pus has disappeared from the prostatic secretion.

Periods of rest between the periods of massage will accomplish more than the persistent long-continued massage for months and the writer has not infrequently cured a patient with chronic prostatitis by simply stopping his massage and sending him to the country.

The writer feels that in the use of hot water and Arzberg's rectal psychrophor we have a valuable adjuvant to other forms of treatment and is one which is eminently rational since it increases the flow of blood temporarily to the diseased parts, improving the circulation and carrying away inflammatory rests.

The position of the vaccines is still very doubtful, but in at least two cases the writer feels that their use was of decided benefit.

32 Schermerhorn St.

These original drawings from microscopic specimens are from Dr. Morton's text book on Genito-Urinary Diseases and Syphilis, 3rd edition.

Children should have all the food they can properly digest. Each child should be considered as a unit, and should be treated as such. It must be remembered that the best obtainable milk is the best food for the growing child of tender years.

The pulmonary tuberculosis of diabetes is insidious, rapidly fatal, with deep sepsis and enormous wasting of the body.

A THOUSAND SUBCUTANEOUS INJECTIONS OF SALVARSAN.*

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DIRECTOR OF THE DERMATOLOGICAL DEPARTMENT OF THE RUDOLPH VIRCHOW HOSPITAL,
Berlin.

In the instructions for the use of neo-salvarsan which accompany each package, the following caution will be found relating to the subcutaneous use of that substance. "Neo-salvarsan may be administered by intravenous or intramuscular injection but subcutaneous injection must under all circumstances be avoided owing to the danger of infiltration." In the light of such a warning any renewed attempt to introduce neo-salvarsan subcutaneously into the body might seem a fruitless if not a foolhardy undertaking.

In spite of this I went on with these investigations, since I have always felt that the animosity against the subcutaneous method was based upon a grave injustice. The facts have been wilfully overlooked that the introduction of my method of subcutaneous injection not only meant the removal of the deposited salvarsan from the muscular tissue to the subcutaneous cellular tissue, but that my published article (*Deut. Med. Woch.*, 1910, No. 30) first called attention to the danger to the eyes from methyl alcohol, which at that time was practically unknown to physicians.

The elimination of that danger at that particular point of time was absolutely decisive with regard to the future fate of the method of treating syphilis with salvarsan. Furthermore, the neutralization and concentration of the fluid which was to be injected also signified a real step in advance. At the very outset my method certainly met with the unintentional endorsement of numerous writers who shared in the favorable reputation which is gained by the suggestion of various more or less minute modifications. But when the method was declared injurious these same writers dumped the entire load of hostility which resulted on me. This did not prevent me from continuing the subcutaneous injections of salvarsan together, in particular cases, with a number of intravenous injections, the patients concerned being bribed, as it were, to submit to them on account of their reputed painlessness. Neither did it prevent me from making the attempt to remove to the utmost practicable degree, all the objections connected with these injections. (Note on this subject my observations before the Hufeland Society, March 14, 1912, noted in *Medizinische Klinik*.)

I was impelled to this action, by the fact that a substance so indispensable as salvarsan in a struggle against a popular disease should be the common property of all physicians, and by the additional fact that in a method of administering it in which the most minute details of technique are requisite, as in the intravenous method of injection, it may lose a considerable portion of its utility. Consequently the aim is a perfectly justifiable one to criticize repeatedly and persistently the intravenous method and all the other methods by which salvarsan is introduced into the body, and to endeavor to free them from the objections which are connected with them.

Now part of these objections are associated with the substance itself and part with the technique by which it is administered. In reference to the first, and in conformity with our early and favorable experience in changing acid and alkaline solutions of salvarsan to neutral emulsions, a great advantage in neo-salvarsan

a priori, seemed to lie in its neutral reaction, which advantage was enhanced to a decided degree by its ready solubility. We, therefore, experimented anew with the subcutaneous method of administering neo-salvarsan. Our first timid attempts, to our utter astonishment, resulted in a minimum of pain, and in not the slightest evidence of the formation of an infiltrate; the point of injection was practically undiscoverable at any time. I therefore decided to give a thousand injections before making any public record of the method.

I have now personally given a thousand injections, and in no case has necrosis resulted. (In one instance I observed a small necrosis of the skin, of slight depth, after a superficial intracutaneous injection which had been made by my assistant.)

After our experience with the first injections in August, 1912, we believed it impossible to get a resulting necrosis. Inasmuch as we had observed that infants treated with salvarsan bore the alkaline solution used for intravenous injection, and generally for subcutaneous injection also, of the strength of 0.1/50 gram, without any decided local reaction, we injected neo-salvarsan also in the strength recommended for intravenous use, that is 0.1/30 gram.

But since by this method we were able to introduce only very small quantities of the substance into adults, and since also on one occasion violent pain was experienced by a patient who had previously received quite a number of injections without pain, the conviction was forced upon us that the pain should not be attributed to the strength of the preparation which was used. Furthermore, we had seen matched with intravenous injections which had turned out badly, correspondingly ill advised subcutaneous injections of dilute solutions of salvarsan, which had been accompanied with the most terrible pain, with infiltration, and with extensive necrosis. We, therefore, proceeded to prepare concentrated solutions of neo-salvarsan in a very small quantity of fluid, using as a medium a seven-tenths per cent. salt solution made from freshly distilled sterile water. We then injected with an ordinary Pravaz syringe from 0.1 to 0.5 gram of neosalvarsan dissolved in one cubic centimeter of the salt solution.

With such a solution we have made individual injections up to 0.9 gram neo-salvarsan in one Cc. of sodium chloride solution.

A solution of 0.1 gram of neo-salvarsan in one Cc. sodium chloride solution seems to be best tolerated, while the quantity of fluid which just falls short of producing pain, by causing pressure symptoms within the tissues, is about three Cc. The substance is so easily dissolved that all that is necessary is to place the neo-salvarsan in a small glass dish, add the cold salt solution and shake the mixture back and forth a few times.

In making very concentrated solutions the salt solution must be slightly warmed. The act of injection is scarcely felt by the patient, particularly when very concentrated solutions are employed.

On four occasions, immediately the injection was given there was violent neuralgic pain radiating even to the tips of the toes, but it passed off in a few minutes, just as is the case after the injection of mercury. Some time afterwards, also in the very great majority of cases in which injections were made, the patients referred to a trifling pain, which was hardly worth mentioning.

A few patients complained of an acute burning sensation in the region of the point of injection, which appeared several hours after the injection and lasted perhaps two hours, but did not interfere with the night's rest. Many times have I been told by patients that the

* Translated for the MEDICAL TIMES from the *Münchener Medizinische Wochenschrift*, Vol. 60, No. 24, 1913.

injections of neo-salvarsan are far less painful than those of salicylate of mercury which they formerly were accustomed to get. Consequently I have frequently been able to give a series of as many as twenty or more injections to a dispensary patient, without occasioning him the slightest inconvenience. In other rather rare cases I have been compelled to abandon the subcutaneous method on account of the pain which was produced by it.

There is a difference in people in the perception of pain after mercury has been injected, and the same thing holds true regarding neo-salvarsan. The diversity depends not only upon the degree of sensitiveness of the patient, but on the method of technique which is employed.

The patients say that many of the injections are painless, and that a few are acutely painful. The injections which caused pain were usually accompanied by swelling of a transient nature, but in the very great majority of cases the injections were absolutely unaccompanied by swelling or by the slightest infiltration. As a consequence I was frequently able to present to visiting physicians, adults and infants who had received ten injections, the seat of the injection being undiscoverable in a single one of them.

In three cases I noted circumscribed areas of softness and redness but they underwent absorption in two weeks without the aid of the knife. In one case there was a very firm infiltrate larger than a walnut in area, like those which occur after injections of calomel.

In none of my cases was a patient ever compelled to keep his bed on account of the presence of an infiltrate.

On the whole the symptoms for the most part were decidedly less intense than those which accompanied injections of mercury and even in those cases in which there was very marked reaction the symptoms did not become as severe as those which result from the injection of gray oil. I finally succeeded in overcoming the great opposition which patients had to the injections, and I was able to carry out the treatment even in sensitive women without any appreciable opposition.

Some of my delicate private patients even preferred the subcutaneous injections to the intravenous, as they did not experience from the former the slight feeling of discomfort which followed the latter.

It became evident furthermore that the disadvantages accompanying the subcutaneous injection of neo-salvarsan were closely related to errors in technique. The upshot of the matter is that the injected fluid should not be deposited in the subcutaneous fatty tissue, nor in the fascia which is particularly sensitive to painful impressions, nor in the muscle, but strictly *over the fascia*. After a little experience one can appreciate the elastic resistance of the fascia, particularly in lean persons who should first be picked out as subjects for treatment, which resistance is in marked contrast with the sensation suggestive of a more fluid body, which is noticeable as soon as the needle is firmly implanted in the fatty or muscular tissue. In those cases in which there is a voluminous layer of fat, firmly adherent to the fascia, the patients are very apt to offer resistance and this sometimes makes a clear determination of the fascia impossible. It is in this class of cases that the unsuccessful injections almost exclusively occur.

As the seat of election for the injection of neo-salvarsan we have always preferred the region of the *trochanter major*, because there the fascia is firmest. On some occasions however the back was successfully selected for the purpose, the objection being that the pain which occasionally follows for a few days par-

takes of the characteristics of a mild intercostal neuralgia.

For more than three years I have tried to find out why so many subcutaneous injections of salvarsan and neosalvarsan are absolutely free from infiltrate, while a portion of them are followed by violent reaction in the tissues.

If a subcutaneous injection is followed by the formation of an infiltrate one realizes shortly that a mistake has been made. If the injection is made into the fatty tissue too superficially, there will be a very extensive infiltration of irregular contour, not very hard, entirely distinct from the skin.

If one infiltrates the loose connective tissue between the fat and the fascia, which easily happens in lean persons with a very movable skin, and which can be seen and felt as a round lump, a round or oblong wheal will remain. The infiltration of the rigid fascia at once becomes troublesome and gives rise to severe pain for several days. The conditions are quite analogous to those which occur with intravenous and paravenous injections. Only the injections of salvarsan solution which are made into the free space are entirely devoid of reaction; injections which are made into the loose cellular tissue, at first cause only a mild burning sensation, but they eventuate in induration of the infiltrated and absorbable tissue over a wide area.

Injections into the walls of veins cause severe pain, which is followed by isolated, cord-like thickening of the walls, of stony hardness. A proper subcutaneous injection is decidedly more difficult to make than a similar intravenous one.

I have recently reached the conclusion that it all depends upon whether the point of the needle is properly directed.

If, in other words, the point of the needle lies squarely upon the fascia and its lumen is not obstructed by any bits of connective tissue, a portion of the cautiously injected fluid will flow back again from the needle. Each time, therefore, before I make an injection of salvarsan solution I test the correctness of position of the point of the needle by the injection of a seven tenths per cent salt solution. If an easy working, graded syringe is used, one can feel, when the syringe is emptied without the slightest exercise of force, that one is injecting into a cavity, but when there is infiltration of the tissues, one feels a perceptible resistance.

Complications did not take place in this entire series of injections, although single doses of neo-salvarsan up to 0.9 gram were given, and a series of doses to a single individual amounting to six grams.

In no case was there albumen in the urine, though the urine in all cases was examined daily. Neither vomiting nor diarrhoea were observed. It is quite worthy of note that the first injection of neo-salvarsan in one who has the primary symptoms of the disease or who has recent syphilides is followed by a temperature of over 102° F., just as was usually the case after the intravenous injection of salvarsan, though not after its subcutaneous injection. The subsequent injections showed no elevation in temperature.

The Herxheimer reaction was particularly noticeable. This is accounted for by the fact that the absorption and internal effect of neo-salvarsan, when it is used subcutaneously, are very similar to that which take place when the intravenous method is used. Objection has been made to the use of the neutral emulsion of salvarsan which was recommended by Lange and myself, on the ground that it would not be as readily absorbed as the acid or alkaline solutions. This

is quite incorrect, as Homer F. Swift (*Journal of Experimental Medicine* XVII, 1913, p. 83) has recently demonstrated in an experimental investigation at the Rockefeller Institute, New York. He discovered that with intramuscular injections, absorption was most uniform when the solution which was used was neutral, that it was less uniform when the solution was alkaline, and most irregular when it was acid. The degree of absorption depends upon the injury which is done to the tissues, which is least severe when a neutral emulsion is used. When an acid injection is used, a very thick, fibrous capsule is formed which greatly retards the process of absorption.

Consequently the injection of acid salvarsan in oil emulsions, according to the investigations of Dalla Favera (*Riforma Medica*, Nos. 19 and 20, 1912, and *Deut. med. Woch.*, 1913, No. 23), has also been demonstrated to be therapeutically ineffective, since the injected material may be found in the tissues many months later in the form of a necrotic and partially calcified mass. In nodules of this character considerable quantities of unabsorbed arsenic were recovered one hundred and eighty-six days after they were injected. The histological investigation in this case showed the typical picture of salvarsan necrosis. This necrosis goes on with disintegration of all the cells and leads also to the disintegration of the blood vessels, so that the necrotic mass lies like a foreign body in the tissues, while the absorption of the arsenic which it contains will in all probability never take place. On the other hand, the neutral neo-salvarsan stands a much better chance of absorption since it causes inflammation and necrosis to a much slighter degree than salvarsan, as histological preparations which have been made, have shown. In other words, seventy-five to eighty-five per cent of neo-salvarsan will be absorbed within one week, while after six weeks only five per cent of the quantity originally injected will remain unabsorbed.

There is no development of the necrotic process which corresponds to this rapid process of absorption when the injection has been properly made into the subcuticular connective tissue.

This process necrosis depends principally upon whether an injected fluid is going to be quickly absorbed. Even pyrrholblue, according to Goldmann (*The External and Internal Secretion in the Light of the Vital Color*, Bruns' *Contributions*, Vol. 64) will cause circumscribed necrosis, if it becomes indurated at the point of injection.

We would, therefore recommend the practice of energetic massage of the tissues which are contiguous to the site of the infection, after an injection has been made. This is the usual custom after every injection of mercury and salvarsan into the muscle, but in the case of subcutaneous injections, as I have already remarked, the question of necrosis will depend chiefly upon whether or not there has been an error in technique. Necrosis of the skin has the disadvantage that it can be seen, but necrosis of the muscle, though out of sight, means the injury of important structures, and hides within itself the danger of thrombosis and of the extension of the necrosis to the nerves. It is, therefore, not the intramuscular method of using salvarsan which first comes into consideration, in comparison with the intravenous, but the subcutaneous.

In many cases it is necessary to make arrangements for another method of injection in addition to the intravenous. The intravenous method is hardly suitable for infants; a cautious subcutaneous dose of salvarsan in cases of weakened heart and kidneys seems well adapted if there are also severe disturbances of metabo-

lism, since the heavy load which the kidneys are carrying is thereby removed. The use of salvarsan in this connection is especially applicable in cases of scarlet fever. To this must be added that with the subcutaneous method the effects of neo-salvarsan upon the clinical symptoms of syphilis are undoubtedly admirable and, as it would seem, are even superior to those which are obtained by the intravenous method.

It now appears to me that neo-salvarsan is a little more toxic than salvarsan on which account I should consider it inferior to salvarsan for intravenous use. This somewhat greater toxicity appears to be unimportant to the organism when the subcutaneous method of introduction is used, though it is of great significance with regard to the curative action. "There are certain relations between complete curative action and the toxicity of a chemotherapeutic substance, in the very nature of the case." *Salvarsan Therapy*, Vol. II, p. 112. Consequently obtaining a negative Wassermann reaction after the subcutaneous use of neo-salvarsan is easily possible, according to our experience up to the present time. Having these facts in mind we have made the attempt, whenever it seemed practicable, to follow up an intravenous injection of salvarsan to a leptic patient with one or several subcutaneous injections of neo-salvarsan, the dosage being 0.5 gram, in order to obtain a curative action which should be more persistent than by other methods, as well as somewhat different specifically. The accomplishment of a complete course of treatment with salvarsan by the subcutaneous method is often temporarily frustrated by the opposition of the patient, more frequently, however, among hospital than among private patients.

If now I am compelled to admit that I have not completely attained the ideal referred to in the second volume of my *Salvarsan Therapy* (p. 23), that is to discover a subcutaneous, or intramuscular method of applying salvarsan which should be free from irritant effects, I nevertheless consider the method which is now in use as so practicable, that I will submit to no delay in publishing it. By this means I shall overcome the fear that harmful consequences may again be produced by its improper use, and that they may unjustly be imposed as a burden of discredit upon the method. History reminds us that the same thing occurred in connection with the introduction of the subcutaneous method of injecting mercury. Mibelli (*The Hypodermic Method in the Treatment of Syphilis*, *Clinical Therapy*, Palermo, 1899), declares that the subcutaneous injections of mercury can be satisfactorily given only by a few specialists.

That method was discarded as impracticable by most dermatologists and innumerable experiments were necessary, particularly those which were undertaken with unremitting perseverance by George Smirnoff at Helsingfors, to show that it was possible, by great care and a very rigid technique to avoid the great defects of the method to which attention had been called by its numerous opponents. Therefore I also venture to hope that the useful and intelligent collaboration of many physicians will result in the perfecting of the subcutaneous method and that the field of use for Ehrlich's curative substance will thereby become general.

Although there are cases of high blood-pressure in which a course of carbonated brine baths has been followed by a lower systolic pressure, there are other cases of high pressure in which the pressure has been higher at the end of the course of treatment than it was at the beginning.

ON WHAT SCIENTIFIC BASIS DO WE ADMINISTER MERCURY IN SYPHILIS?

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Mercury has been used in Europe in the treatment of lues for some four hundred years; it has been very much longer employed in China; Egyptian mummies, whose bones show undoubted evidences of syphilis, have been found impregnated with metallic mercury, so that it has been used by the older civilizations empirically since the dawn of civilization, yet even to-day, I am not aware that its mode of action has been defined.

Therapy has made but little progress compared with pathology, physiology, experimental surgery and other branches of medicine which have enlightened us in overcoming disease. This is because scientific investigations have been prosecuted with less intensity by pharmacologists from the chemical standpoint, and because we are only slowly realizing that all life processes must in their ultimate analysis be considered as chemical reactions. Medical studies are now so highly specialized and differentiated, and the clinical side is so much more important to the practicing physicians, that chemotherapy and the physico-chemical processes occurring incessantly in living cell protoplasm can only be studied by the select few who have time to devote to these interesting studies. As Sir William Whittle said in his annual oration on the trend of thought in recent pharmacological research (Medical Society, London, May 25, 1913): "The high pressure and whirl of professional activities permit few practitioners to cultivate the habit of thinking in chemical language. The nature of our work almost compels the habit of thinking out of our clinical problems from the physical and vitalistic point of view."

As a matter of fact, while middle-aged physicians cannot be expected to be familiar with the biochemical work that has been done in the last few decades, the more recent graduate in medicine has had little time during his studies to grasp more than the underlying chemical principles applicable to his calling.

Before entering on the subject of this paper, it will be interesting to review some of the pharmacological work already accomplished. While much of this has perhaps no direct bearing on the action of mercury, in patients harboring the *treponema pallida*, it will show the direction in which this inquiry should be made. Empiricism was universal fifty years ago and the veil is only slowly lifting, partly because attention has been more intensely directed to other practical branches of research, and partly because the therapeutic nihilism of the past decade discouraged chemical investigators.

We recognize that the organism endeavors not only to accommodate itself to disease, and of itself acquires immunity, but medication properly applied will assist and hasten this result. Organic remedial agents when taken internally, like alimentary substances, in their passage from the mouth to the anus, pass through, either as inert substances or merely act mechanically as irritants, etc., or give rise to reactions between them and the secretions of the special secreting cells which are encountered from the buccal cavity to the anus.

The systematic research into the physiologic action of drugs may be said to have begun when Crum Brown and Fraser, in 1868, discovered that the substitution product, methyl strychnine, differed from that of strychnine on account of the fact that the originally tertiary base strychnine was converted into a quaternary ammonium compound, and this led to chemical modifications

of other alkaloids with differing physiological action. Brunton and Cash showed later that the carbon compounds derived from CH_4 (marsh gas), of which chloroform CHCl_3 is a familiar example, belonging to the open chain series, exercised a paralytic action on nerve centers, while the closed chain series belonging to the benzene nucleus C_6H_6 , produce convulsions before paralyzing, and the physiologic action of chloral and paraldehyde as hypnotics, was discovered by researches based on the paralytic action of the open chain series of carbon compounds. When the hydrogen atoms in the closed benzene ring are replaced by HO, phenol results, and when other hydrogens atoms are substituted by HO or CH_3 , the antiseptic power of the resulting compound proportionally increases; furthermore, it was found that by varying the position of HO in the ring, antipyretic properties were developed and thus such synthetic products as antipyrine have been deliberately built up, not accidentally discovered.

The chemist is thus able to change the structure of the molecule, eliminating objectionable features and intensifying desirable qualities at will, by the introduction of new groups.

Synthetic substitution has progressed on similar lines with such success that we can now predict with almost certitude the therapeutic action of any uncreated chemical compound and empirical therapy would be a thing of the past, were it not that we do not possess as yet a complete knowledge of the structural formulae of complex chemical compounds.

If obstacles arise which the physiological chemist has not been able to overcome, it is because the theoretical advantages of new compounds are sometimes counteracted by unforeseen physical and chemical changes taking place in the blood and cell protoplasm, so that much further experiment and patient investigation is still required.

We have been greatly assisted in our conception of drug action by Ehrlich's theory of chemotherapy based on the chemical combination of some of its groups with other groups in the living protoplasm of cells and although this has only been proved in a few isolated cases, it is extremely useful as an hypothesis.

It cannot yet be proved that the effect of a drug is the result of chemical reactions between its molecules and the living protoplasm of the cells; chemists, nevertheless, from study of the eliminated transformed products, have conceived such compounds, as phenacetin and other para-amino-phenol derivatives. If, therefore, our knowledge of the structural groupings of living cell protoplasm and the physico-chemical processes of cells were more complete, we should be in a better position to understand the possible reactions between the acid and basic radicals of the numerous amido-acid groups and an immense advance would then be immediately possible. Ehrlich's side chain hypothesis promises that no result will follow the injection of a toxine unless the cells of the organism contain in their molecule, a group possessing an affinity for the haptophore in the toxins, as well as a group capable of being injured by the toxophore side chain of the toxin. Investigations gradually fill in the gaps required to show the correctness of Ehrlich's theories and their very general application not only in the consideration of chemical combination or fixation of toxins of micro-organic origin, but also to drug action. Animals which are said to be immune to certain infectious diseases, are found to be only relatively so, for when enough toxins are administered to overcome their natural immunity, i. e., saturate their antibodies, they succumb as other animals do.

Quinine, it has been shown, enters into chemical combination with the protoplasm of the malarial parasite and by so doing, deprives it of its power of absorbing oxygen, thus confirming the chemical nature of drug action.

Wright's opsonic theories are also in accordance with chemotherapy, since the organism produces bacteriotrophic substances which chemically combine with bacterial protoplasm. Immuno and vaccine therapy, therefore, is based on these principles, for chemical reactions take place whenever attack is made upon the tissues by dissolved bacterial protoplasm. Measuring of the opsonic index and the phagocytic phenomena are more complicated and difficult of demonstration than the simpler neutralization of toxins by anti-toxins, because no true antibodies are produced during vaccine treatment.

The so-called vital principles of all cells are now known to be their enzymes. We are familiar with the effects of enzymes, but not with their chemical composition, for while in some rare instances they have been partially isolated from their proteid environment, they then lose their enzymatic power, so that it has not been possible to determine even their approximate structure from the chemical standpoint.

Sir William Whittle considers that enzymes act chemically in the same way as toxins and antitoxins, but with this difference that they do not act quantitatively. Their definite and permanent chemical properties are supported by the fact that active enzyme trypsin has been found by Kobert in a spider preserved at the Nuremberg museum for 150 years, and Sehart obtained active glycolytic ferment in the muscles of a mummy. Unlike the definite products of enzyme action, such as quinine or methyl salicylate, the enzyme accomplishing this transformation of cell protoplasm into definite chemical substances is not affected, but remains and is capable of other transformations and rearrangements of chemical groups. I would compare this non-quantitative property of enzymes with the rôle of a bridge over a river, permitting rapid transportation of troops, and remaining after their passage for the service of other troops.

The action of enzymes, moreover, has been found to be reversible, change occurring from one side or the other until an equilibrium is established. Wells has proved that enzymes quicken synthesis and the cleavage of organic molecular groups but are not essential to these changes. He says: "All metabolism may be considered as a continuous attempt at establishment of equilibrium by enzymes perpetuated by prevention of attaining of actual equilibrium through destruction of some of the participating substances by oxidation or other chemical processes, or by the removal from the cell, or entrance into it, of materials which overbalance one side of the equation."

When sterile enzymes are introduced into the circulation, a profound toxemia results, but smaller amounts injected and repeated in increasing quantities induce the formation of protective antibodies which impart an anti-enzymatic quality to the blood, thus acting in a similar manner to the antitoxin of diphtheria; furthermore, the anti-enzyme serum combines only with its own enzyme. These ferments, therefore, must contain a haptophore and toxophore group capable of combining chemically with receptors in the molecule of the antiferment.

The living cell of all organisms is considered by modern biologists as belonging to a co-ordinated system of ferments on which life activities depend; they are constantly building up, breaking down, synthesising new compounds and forming protective antibodies which prevent autolysis of essential body tissues or determine

autolysis of undesirable cells, and this biochemical principle or chemotaxis, should be our future guide in the better understanding of drug action in the treatment of disease. It is true that we have much to learn, especially in regard to such physical laws as to surface tension, and ameboid cell phenomena which are constantly causing changes of a chemical nature in the surrounding liquid media by chemotactic action. We are trying to harmonize the action of leucocytes with the osmotic growths of Stéphanie Leduc, who has been able to show that these sterilized chemical substances absorb food, break it up chemically, expel waste products of the reaction, using only what they require for growth just as leucocytes do; but these speculations do not do away with the solid ground we are treading in our views of the biochemical principle. We have reviewed many of the modern findings as to drug action and will now endeavor to apply the same to an explanation of the action of mercurial preparations in the treatment of syphilis.

Since 1904, Albert Robin, Henri, Mayer, Iscovesco, Netter, Bardet, Galeotti, Todde, Charrin and other European authorities have studied the action of metallic ferments. They find that they act in a similar manner to inorganic enzymes, possessing catalytic action like yeasts, oxydases and so forth. The action of these metallic ferments appears to be truly chemical, and coincides with Ehrlich's views, the combination with the protoplasm of cells, however, being only temporary, since after the formation of antibodies the metallic ferment is again liberated. The amount required, therefore, to bring about cell reactions, is not ponderable, and may be compared with diastase in its action on sugars. As an example of catalytic action, Lebon's experiment is an excellent example. When we take aluminum in powder, wash it with a solution of mercuric chloride and throw it on a filter paper, there is a swelling out of the powder, with rise of temperature to over 100 C°. This is due to a trace of reduced mercury which by catalytic action oxidizes the aluminum with production of water vapor and hydrogen out of all proportion to the amount of mercury present. A more familiar example is the catalytic action of perchloride of platinum in the presence of zinc and sulphuric acid with degagement of hydrogen, which would be very slow without the trace of perchloride of platinum or some other perchloride. These colloidal metallic ferments are visible only under the ultramicroscope as shining metallic particles, so small, in fact, as to approach the molecular state. They therefore offer an immense surface and a wide range of catalytic action not possessed by larger granules of metal. Space will not allow a detailed discussion of these metallic ferments, suffice it to say that they can be prepared by the slow reduction of metallic salts of silver, gold, copper, mercury, and so forth, in the presence of colloids and by dialysing out the exchange salts, or they may be made in a purer form by electrolysis. These colloidal metallic ferments in infinitesimal proportions destroy *in vitro* such pathogens as the bacillus pyocyaneus with 1/100,000 of colloidal silver, pneumococcus with 1/90,000, charbon bacillus with 1/50,000.

Clinically, they have been found useful in numerous infectious diseases. From this brief review of modern ideas, I am led to believe that mercury acts as a metallic ferment however administered. This would account for the immunity mercury confers on syphilitics who have submitted to a thorough treatment. On this hypothesis we can gain a more intelligent conception of the advantages derived from inunctions, inhalations, gray powder (all being mercury in its elementary state); internal mercurial medication, and the intramuscular and intravenous methods.

Insoluble salts of mercury, such as the protoiodide, calomel or gray powder, should theoretically have little if any action, and as a matter of fact the greater part is eliminated with the feces as such, as metallic globules of mercury or as a sulphide all visible under the microscope.

From the experiments of H. Zilgien (*Bull. G. de Therapeutique*, June 22, 1913), we learn that proto-salts of mercury such as calomel, are raised to the soluble mercuric state when taken into the stomach, the amount being dependent on the amount of ammonium carbamate circulating in the blood. This investigator found that hydrochloric, lactic and other acids did not do this, but that nascent ammonium lactate, which is constantly being created in the stomach by the action of free lactic acid, and small amounts of ammonium carbamate circulating in the veins of the gastric mucosa, immediately dissolved a certain quantity of calomel. The quantity of nascent ammonium lactate is increased when the hepatic cells are at fault and the ammonia, resulting from metabolic digestive processes, is not promptly converted into urea. We can thus explain the occasional symptoms of poisoning which occur when calomel is administered internally.

We can also explain the slight absorption of insoluble proto-salts of mercury under normal conditions. It is extremely improbable, moreover, that absorption can take place in the lower intestine, where hydrogen sulphide is always present, since H_2S would immediately precipitate an insoluble sulphide and pass out of the body as such. We can understand now why small and repeated doses of calomel are more effective than massive doses, since as soon as the calomel passes beyond the pyloric orifice, whether in the soluble or insoluble form, the chances of any being taken up from the digestive canal are slight and can only occur in the absence of H_2S , which means the absence of any sulphate reducing bacteria, a condition which practically never exists in the intestine of man, and is only known to occur in some few small animals such as flying foxes, who do not retain intestinal residues, and are constantly defecating. Saurians, scorpions and some forms of insect life also have a poor intestinal flora.

Protoiodide of mercury was the mainstay of Riccord's remarkable success in Paris and his teachings are still followed by the older syphilographers; but like all insoluble proto-salts of mercury, it is somewhat irritating owing to formation of soluble salts as explained by Zilgien. Since we can always find mercury in the urine, whatever preparation is administered by the mouth, it is evident that a certain amount really does enter the economy, some of which is probably reduced to the colloidal form and taken up from the intestinal tract along with the amido-acids. We might expect better absorption internally, from soluble salts of mercury, but they are too irritating, owing to their chemical affinity for the protoplasm of the gastric mucosa. Given with food, this can be avoided to some extent when soluble double salts of the mercuric and alkaline chlorides or iodides are given in the form of triturates of milk sugar. These soluble mercuric salts combine with the proteids of foods or with living protoplasm to form albuminates. These are in turn reduced by the alkaline body fluids as already explained.

That such reactions take place can be easily proved by placing albuminate of mercury in the presence of organic matter, bacteria and an alkaline fluid. The greater the dilution, the greater the opportunity for the formation of larger amounts of the fine pseudo-molecular particles of mercury or metallic ferments. When mercuric iodide

dissolved in oil is administered by the mouth in the form of capsules representing 2 milligrams of HgI_2 each, it is not affected in the stomach to an appreciable extent, but in the intestine, it is slowly saponified, a part being probably mechanically carried along with other emulsified fats and poured into the blood stream from the lymphatic duct. During its passage or after entry into the alkaline blood it is under admirable conditions for reduction to the colloid state, since not only is the subdivision greater in oily solution, but mercuric salts are resolved into finer particles of metallic mercury than the insoluble proto-salts even in the laboratory.

The internal administration of mercury, however, is at best unsatisfactory, since it is impossible to determine what amount is retained in the economy before expulsion with fecal residues of food. Inunction possibly allows a small amount of colloidal mercury to penetrate the integumentum, but it is now believed that the benefits of inunctions is chiefly due to mercurial vapors.

Intravenous injections of soluble mercurial salts are dangerous and little used, and the most approved method is the intramuscular method. Calomel, grey oil, the benzoate, salicylate, tannate, and other insoluble salts when intramuscularly injected, remain as such for long periods as has been shown by sections of the gluteals of syphilitic cadavers who have received such injections during life. Slowly, the alkaline body fluids decompose these salts, reduce the mercury to an oxide and finally to the metallic state, possibly entirely in the colloidal form, since the process is very slow. We see, therefore, that it is merely a matter of choice as to the form of mercury to inject and it is unfortunate that an insufficient acquaintance with the chemistry of the subject allows us to be carried away with any preference without good grounds. The benzoate and salicylate are probably less desirable than calomel, but we have no space for a discussion of this phase of the subject. Suffice it to say that no matter what the compound may be, it is only antisiphilitic when reduced to the state of mercury and in my opinion only when it reaches the colloidal ultra-microscopic state of subdivision; therefore, salts which resist rapid decomposition are undesirable.

The soluble mercuric chloride or cyanate are somewhat painful; they immediately form albuminates of mercury, insoluble like the salicylates, benzoate, etc., and must be reduced in a similar manner. The insoluble forms of mercury are useful in dispensary practice, where patients are irregular in attendance, for we can give them large doses with impunity, enough in fact to last them for months at a time and so provide a storehouse from which their tissues can slowly draw upon. With private patients, and those who are regular in attendance, soluble preparations are preferable. Intramuscular injections of 1 per cent. mercuric iodide in an aseptic oil do not coagulate the albumin of the tissues, are not painful, neither do they cause abscesses or hard nodules if the gluteal muscles are properly massaged immediately afterwards. The oil is slowly emulsified and saponified by the alkaline body tissues with the formation of the colloidal form of mercury and its action is remarkably prompt, although the amount is very small, insignificant, in fact, in comparison with the dose of the salicylate of mercury usually injected. The red iodide solution in oil, however, has to be administered at least twice weekly, 2 Cc. at a time, as it is quickly eliminated from the body, but when these bi-weekly injections are made for six months, luetic symptoms clear up very quickly and I have never observed any accidents follow its use. After six months treatment, I give the patients a rest for three months, although they always pick up

weight and feel well. These results I have always found with or without the use of salvarsan, but without salvarsan, we rarely get a permanent negative Wassermann, and I am beginning to believe that with mercury alone, we only very rarely get a permanent negative Wassermann. With mercury alone, however, I believe we are able to create sufficient antisyphilitic defense by the stimulation of immune bodies to protect the individual and the offspring, against the *treponema pallida*, but I recommend mercurial treatment for a few months every year for four or five years and an examination at least once a year during life. It is still too early to say whether we can absolutely consider a patient free from syphilis with a negative Wassermann after repeated salvarsan intravenous injections and until this is positively established I prefer to give prophylactic mercurial treatment as well. The object of this paper, however, is not to discuss the relative value of mercury and dioxidyamidoarsenobenzol, but to endeavor to throw some light on the *modus operandi* of mercury in syphilis.

In conclusion, mercury and dioxidyamidoarsenobenzol make it possible for us to cure syphilis and the time may come when this disease will be as rare as smallpox is to-day in civilized countries. I am not prepared yet to rely on salvarsan alone, for it often gives a false security to the patient after one or more injections, since all symptoms of lues rapidly disappear under its influences, for I have seen in my private practice, at the hospital clinic, and with Gaucher at the great luetic hospital of St. Louis in Paris, where experiments were carried on for over a year with 606 alone, a return of the primary chancre a year or more afterwards. With salvarsan, we endeavor in one or more operations to attack the protoplasm of the *treponema*, and destroy it by chemical union with the arsenical preparation, but if one or more spirochaeta escape its chemiotoxic action by being lodged in some part of the body, such as the cartilages, in which the blood supply is slow, it is only a matter of time when they multiply again and symptoms reappear.

With mercury alone, by the action of the mercurial colloid ferment, the slow production of antibodies is stimulated, limiting the activities of the *treponema*, and when persisted in under the best hygienic condition, we have good clinical evidence that syphilitic accidents can be controlled, that in the vast majority of cases the diseases will not be transmitted to the offspring, and that parasymphilitic sequelae, such as arteriosclerosis, paresis and tabes do not occur. Since metallic ferments can be detected by the spectroscope in every part of the body except in the arachnoid space, this would explain why mercury is impotent to arrest tabes and paresis in spite of energetic treatment. We see, therefore, how desirable it is to combine these two antileptic treatments; killing all, or the major portion of the *treponema* with salvarsan, and completing the cure by the mercurial colloid ferment which aid in the natural immunity production of antibodies.

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Vulvar carcinoma usually starts as a small infiltration which rapidly ulcerates and then gradually extends into the surrounding tissues. Pruritus is the earliest and most marked symptom; later there is discharge and bleeding; and, in the advanced cases, pain due to involvement of the periosteum and nerve trunks becomes pronounced.

Intense pruritus vulvæ has been cured by the use of the constant current—the anode being applied to the vulva, the cathode to the various other parts affected.

THE DIAGNOSIS OF THE SURGICAL RENAL AFFECTIONS.*

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The essayist realizes that an account sufficiently detailed and complete to meet the requirements of this most attractive subject would largely exceed the time limit allotted to each of the many interesting papers that await your attention. He will, therefore, make an attempt to systematically arrange the salient points in the subjective as well as objective symptomatology of the more important renal maladies, and what is more essential, invite your consideration for a practical means of revealing a differential.

Though this may seem a difficult task, closer scrutiny shows it to be more apparent than real. Indeed, with the means now at our command, if properly applied and correctly interpreted, the diagnosis in this branch of medicine is relatively and absolutely as satisfying as in the other departments.

For the sake of brevity and convenience let us thus arrange the maladies to be considered under the following heads:

- Hydronephrosis with or without ptosis,
- Pyelonephritis and pyonephrosis,
- Tuberculosis,
- Calculus,
- Neoplasms,
- Unilateral circumscribed interstitial nephritis,
- Hemorrhagic Brights,
- Essential hematuria.

There are a certain number of symptoms more or less common to all of them. This seemingly confusing element is, however, less perplexing if analyzed in detail. Pain, localized or referred, hematuria, pyuria and disturbed micturition may be present as urogenital features in any of them. Chill, fever, sweats, inappetence, gastric disturbances with loss of body weight and blood changes are indicative of an accompanying constitutional reaction. These may or may not be present at times in any or all of them. Again, these may be so severe that they may so predominate as to almost overshadow the local lesion.

Hematuria:—That is, the macroscopic or microscopic presence of blood so common to all renal lesions, is a valuable, if not the most valuable feature of the syndrome, provided its time of appearance, the intervals of freedom and sequence is carefully studied in combination with other signs. We are assuming, of course, that its vesical origin is excluded by the method of precision.

The presence of pus, its known origin being the renal structure, the bladder being excluded, is of great moment, and its minuter detailed study regarding time of appearance, varying quantity, with or without pain and constitutional disturbances, merits all the attention one can bestow. Pain becomes at once the pit-fall and valuable guide; the unwary often falling victims to its elusive vagaries, while it blazons the way for the cautious. Its careful study is worth all the time and labor one can bestow, as will be shown later on.

Disturbances of micturition if carefully aligned, though not always pathognomonic of significance, are often very suggestive.

The absence of even slight, to say nothing of grave

*Read at the meeting of the Oklahoma State Medical Association, May 14, 1913.

constitutional reaction, even in the presence of very destructive lesions on the one hand, and its presence, though but transitory, where the local lesion is less pronounced is only apparently confusing. Closer observation, indeed, will easily clarify this seeming paradox.

The hematology, bacteriology and radiography of a given case, plus its cystoscopy and ureteral catheterization are at times indispensable. Without underestimating these methods of precision, a thorough clinical history is sometimes more pregnant with facts leading to an indisputable conclusion than an exclusive dependence on our modern armamentarium of precision. The experienced know its limitations, and avail themselves of both, excluding neither.

Reverting now to the pathological entities, a hydronephrosis may proceed so silently that it finally comes to the knowledge of either patient or attendant accidentally during the course of a physical examination. A painless fluctuating tumor, which upon exploratory puncture reveals an altered urinary fluid and often very much changed, but yet sufficiently obvious to be assuring. Its pathology is only to be determined by careful examination. Should it be a closed sack as revealed by the cystoscope, or an attempted ureteral catheterization may prove that its secreting structure is more or less atrophied.

Intermittent hydronephroses announce themselves in addition to local palpatory signs by simulating calculus crises when due to a twisting of the pedicle. The crises may be typical, with nausea, vomiting, chill, fever and sweats and the classical radiating pain, and what is often more deceptive, the appearance of microscopic or macroscopic blood in the urine at the close of the phenomenon. When not due to an impacted pelvo-ureteral stone it differentiates itself by the final disappearance of the erythrocytes during the intervals of freedom. The constant presence of blood cells or their shadows reverses the diagnosis in favor of stone.

At this point it is well to bestow a passing glance upon that condition or part of a pathological state called nephroptosis, with its protean syndrome. In the past a scapegoat for a multitude of sins it became a favorite point of attack for enthusiasts and commercialists alike. A more rational and less rapacious therapy has at last shunted it from the surgeon unless torsion of the pedicle indicates interference, the warrant for a nephropexy being largely, if not exclusively, based upon the symptoms just mentioned. Past experience and consequent wisdom has reduced this fashionable carpentry at least 95%, its failures and disappointments proving a chagrin to the honest practitioner and a delusion and a snare to the neurotics and hysterics hugging this delusive phantom of hope. It still, however, remains a source of revenue for the cunning and unconscionable.

Pyelonephritis: Either of the ascending or hemic variety may be so fulminant in character that the intoxication may dominate the scene to the exclusion of the fons et origo mali. In these hyperacute forms little would be gained even if the latter be known through surgical intervention.

The sub-acute, or chronic forms if unilateral will yield more gratifying results if subjected to the knife. Indeed, in the bilateral form—or so-called surgical kidney—some brilliant achievements have been accredited to timely surgery.

The history, whether showing its origin to have been from below or through the vascular channels, is of paramount importance. The presence of pus and blood cells in the urine, with or without casts, and the revela-

tions of ureteral catheterization to establish its unilateral presence, its bacteriology, including local palpatory evidences, generally establish the diagnosis.

Pyonephrosis: Or, as the name indicates, the veritable pus kidney, demands a painstaking inquiry in order to postulate its primary or secondary origin. The surgical therapy is dependent upon this definition. It must be admitted, however, that this is not always possible, the exploration alone deciding. Here, as elsewhere, however, a pre-operative diagnosis enhances the prospects of the patient.

A secondarily infected hydronephrosis, whether through the blood stream or from below, can be diagnosed if a thorough antecedent history is obtainable. A physical criterion of importance is the fixity or mobility of the tumor. Primary pyonephroses, owing to adherent peri or para nephritides, are immobile. The contrary is usually true in the infected hydronephroses. There may or may not be differences in size favoring the one or the other, which I, however, regard as of little value, very large pus sacs often being of the multilocular variety and with a very positive evidence of a primary infection. Per contra the hydronephroses are not always large, and it must not be forgotten that a chronic pyonephrotic kidney may be beyond palpatory access. In the latter, however, if of long standing, in one whose abdominal wall is not obese, a much thickened ureter will be found accessible to the palpating digit via either vagina or rectum.

This is never true in a preceding hydronephrosis, the ureter usually being lengthened and thin.

A skiagraph may show a disorganized kidney and yet not infrequently prove deceptive because of incrustating limestones, vouching for primary calculi as the initial offenders.

For the general practitioner it is well to bear in mind that a furunculosis, carbuncles, measles or variola may stand in an infecting relationship where the lesion is primarily hydronephrotic.

The urinary ascending variety often incriminates a present stricture, hypertrophied prostate, cystitis or an infecting catheter.

Tuberculosis: Surgical autopsies, experiments and observations in vivo have definitely located the origin of uro-genital tuberculosis. In the vast, vast majority of cases, say 95 per cent., it is primarily renal and unilateral. Less than twenty years ago the opposite view obtained. When I was a student of Guyon he still maintained this belief. The surgeon, however, taking the place of the pathologist, incontrovertibly demonstrated that the latter was dealing with a terminal condition. The former corrected the error while witnessing the progress of the disease. The brilliant successes in this branch of renal surgery are due to this pathological reconstruction. Early recognition and prompt intervention have illumined the pages of renal tuberculosis beyond the belief of former times. It behooves us, therefore, to strive for its early recognition. Unfortunately, it masquerades as a cystitis, lulling the practitioner into a false sense of security that proves fatal through procrastination.

In the young or middle-aged a slight nocturnal frequency which may or may not be continued into the day, should arouse suspicion. There may be a slight burning sensation during or at the close of micturition. Sometimes the urgency may be imperious, producing a false incontinence. Slight turbidity of the urine due to leucocytes, or the latter and blood cells, with perhaps a few hyaline casts should also be regarded as suspicious.

Albumin, due to blood cells, or if greater than the corresponding amount, but due to renal implication, is also strongly suggestive; yet, strange to say, these suspicious elements escape recognition or defy scrutiny. The case is frequently treated as a cystitis or vesical catarrh, until the more careful or astute establishes a late diagnosis.

When one reflects that until the vesical mucosa is involved the presence of tubercle bacilli is hard to demonstrate and that grave mistakes have been made in the identification of a resembling micro-organism—the smegma bacillus—some difficulty, though not insuperable, postpones what might otherwise have been an early recognition.

Fortunately, where the bacillary evidences are lacking, the urinary cultural methods, provocative tuberculin injections, or guinea pig inoculations, may confirm the suspicion.

It must not be supposed that these kidneys are always sufficiently enlarged to be palpable. Those familiar with the varying pathology of renal tuberculosis know that the kidney may be reduced in size, a lipomatous mass enclosing a renal remnant as though in a cast. On the other hand, I have seen it occupy half the abdomen in a boy of eight. That, however, which is really pathognomically significant is its immobility during respiration, peri-renal or para-renal adhesions being responsible for its fixation. In some of the advanced cases the thickened ureter can be palpated per vagina or rectum, and the cystoscopic picture shows a ureteral retraction resembling a funnel.

Tubercular or other ulcers circumferentially about either ureteral papillae is a conclusive stamp indicating which is involved. The bladder involvement being late, this unfortunately is of no value in the early history. Yet an edema of the papillae may be suggestive. A compensatory hypertrophy of a healthy kidney, rendering it palpable, may lead to error unless one resorts to urinary segregation.

It sometimes happens that a tubercular ulcer limits itself to the apex of a Malpighian body, causing the so-called papillary tuberculosis. The most urgent symptom is then an almost constant hemorrhage, mimicking a neoplasm.

The several schemes devised to elicit the presence of tuberculosis which were just mentioned may be indispensable for a differentiation and finally even an exploration may be a final resort.

The body stigmata of previous tubercular processes should not be overlooked. The landmarks in and about bones, joints, glands and lungs should be sought as tell-tale evidences of an obsolescent process.

These cases even if not reduced much in flesh show a profound anemia, often with a hemoglobin reduction to as low as 50 per cent. The temperature exacerbations, too, instead of being vesperal in character, may be detected towards midnight. With all these data in mind and suspicion once aroused, one should and must finally arrive.

Renal Calculus: Intense colicky pains in the loin, radiating downward and forward to the groin, and thence to the scrotum or labia and thigh of the affected side, bloody urine with or without passage of stone, was the old teaching, and even to some extent the present belief. Admitting that occasionally this is a typical grouping denoting the presence of a concretion, the unqualified acceptance of this belief to the exclusion of other and oftener more valuable signs would spell failure in 75 per cent. of the cases.

In the first place, even this classical array of symp-

toms can be present in a variety of morbid states not stone, and particularly in that simulating disease which we know to be due to a unilateral, circumscribed, interstitial nephritis. Since its description by Sabatier under the rubric *hematurie nephralgique*, it remained a conundrum. The name was provisionally applied to satisfy the terminologists, since it embraced its two chief symptoms, hemorrhage and pain.

Later, however, Israel especially determined its exact pathology by taking sections from living subjects, suffering from this malady, the findings corresponding with his descriptive nomenclature. By further studies this distinguished surgeon established a practical and precise method for differential diagnosis.

An acute renal calculus crisis and the disease just described may begin with loin pains radiating along the groin and thence into the scrotum or labia as well as into the thigh. Gastric reflexes, consisting of nausea, vomiting, constitutional disturbances, embracing chills, fevers and sweats, are common to both. Both show the characteristic haematuria, microscopically if not macroscopically, at the termination of the attack. Up to this point there is no differential. The subsequent history, however, indelibly impresses it.

In the stone disease blood cells or their shadows are always present, especially in the urine voided at the end of the day. In the simulant their presence ceases a few days following the crisis. Where, however, the mimicking attacks occur too frequently, this distinguishing phenomena is no longer available. In that class of renal or ureteral calculi where the crises are conspicuously absent the usual diagnoses betray a degree of professional insufficiency at once ridiculous and appalling.

Not a few times have I removed ureteral stones for the relief of persistent sciatica of months and years duration. Not long since a miss of 18 suffering from abdominal pains simulating appendicitis for 15 years, came to me for relief. She was a morphinist. She had an appendectomy done by a most competent surgeon. The extraction of a thumb-sized stone through a pyelotomy sent the patient home after ten days permanently relieved of her pain and addiction.

The Roentgen ray plus ureteral catheterization is of inestimable service. Notwithstanding the improved technique, owing to a variety of causes, this method, too, has its limitations. The painted catheter, or bougie, is an important means against errors caused by enteroliths, phleboliths, sesamoids, etc., and what is not to be overlooked the possible absence of one kidney, or even the treachery of paradoxical reno-renal reflexes. With a threatening anuria the importance of the latter is strikingly apparent.

Before leaving this branch of the subject let me admonish you again to avail yourselves again and again of a microscopic search for erythrocytes, whose constant presence associated with crises or referred neuralgias is almost pathognomonic of enal or ureteral stone.

Neoplasms: Their diagnosis is akin to their positive palpatory or visible demonstration. That this is not always possible is easily understood. Especially is this true of that early period in which this knowledge might mean another crowning glory for renal surgery.

Whether it be an infiltrating carcinoma, a hypernephroma, or other growth, it may be situated at the upper pole, and even occasionally on the posterior surface, and of such dimensions as not to materially increase the size or alter the form of the organ. When located in the center or at the lower pole an earlier diagnosis is possible. Even where the growth is small it may be very malignant, involving the adjacent tissues

or vessels and by metastasis affect distant tissues or by continuity include the lower urinary tract.

A common reproach is the assumption that renal pain is a participating feature. This as a rule is not true, and when present in the form of renal colics is not caused by the growth per se but either through congestive alterations or blood clots finding their way through the ureter.

Hemorrhage, however, is in evidence in more than 75 per cent. of the cases somewhere in the progress of the malady, and in many the first and only evidence of the pathological change until its exsanguinating effects bring other evils in its train.

Usually the hemorrhage is of a capricious character, appearing suddenly without provocation, and ceasing suddenly. Sometimes a very long interval between the first and second bleedings is observed. These intervals, however, grow shorter, until the hemorrhage may be practically a continuous process. It was claimed by Guyon that in many instances it finally definitely ceased. This may be true owing to the occlusion of the ureter, but is the exception rather than the rule.

A recent varicocele on the involved side is also an occasional phenomenon of value. The irregularity of the hemorrhagic detail is a strongly suggestive hint. Thus, in the course of one day there may be a free hemorrhage in one micturition, followed by several which reveal no blood to the unaided eye. Where the clotting is large, however, it may give rise to crises and retention.

Careful search may reveal casts of the ureter 10 to 12 centimeters in length. This can only mean that its source is the upper urinary tract, though it does not disclose the pathology. The search for fragments of the growth, to which the older texts so often refer, is more or less a chimera.

Israel described small clots more or less resembling the tripper faeden and of different shades, depending upon the amount of blood coloring matter present, and made up largely of fibrin, leucocytes and granular degenerated cells, which when present he regards as pathognomic of renal neoplasms. This he explains as the droppings from an icicle-like projection of the growth into the kidney pelvis.

It is important, of course, to resort to cystoscopy during the bleedings, especially when not too severe, and by the employment of the irrigating device to determine which kidney is at fault.

Renal tuberculosis being most prevalent during the third and four decennium, hemorrhages at that time are not as strongly indicative of malignancy as they would be in life's extremes, say in the first decennium, and later in the fifth, sixth or seventh.

Occasionally, constitutional disturbances are difficult to reconcile with the presence of a renal neoplasm, whether the latter is demonstrable or not.

As a most remarkable example I will succinctly relate the following: Married woman of 38 developed a cough with expectoration, nausea, vomiting, an intermittent fever and sweats. Climate cures and stomach and other specialists failed to control the progress of the disease. At no time was there a hematuria. Some time later a tumor suddenly developed in the left hypochondrium. This was attended with some pain for a few hours requiring an anodyne. It never recurred. It was diagnosed as a spleen, and the presence of the usual notching was due to a capping of a hypernephroma over the upper pole. The kidney itself was really reduced in size. The customary physical signs distinguished the kidney, however, from the spleen. Hemoglobin 50 per cent. Nephrectomy. Immediate cessa-

tion of all the symptoms except the sweats. Lethal exit from a later osseous metastasis. There never was a microscopic or macroscopic hematuria. The fever and other symptoms probably were due to the intoxication products of the growth.

Though the outlook or an early diagnosis is not always encouraging, a more propitious expectancy is in store for those who will avail themselves of the minor details, employing every modern resource to this end.

In passing it must not be forgotten that women accustomed to irregularities of menstruation, especially during the menopause, are often unable to distinguish between this and a urinary hemorrhage, and will therefore permit the loss of most valuable time before appealing for aid.

Again, these neoplasms may require differentiation from almost any abdominal growth. Thus a case with actual oliguria—practically anuria—was brought to me as a kidney lesion, alleged to be due to an impacted calculus. The pre-operative diagnosis, however, was an ovarian cyst with torsion of the pedicle. Operation disclosed the latter as the cause of the symptoms.

Lack of time forbids my entering upon growths of the renal pelvis, adrenals, and para nephritic tissues, or polycystic renal degeneration.

Of calculus anuria, where prompt action is demanded to rescue, as it were, a brand from the burning, a precise anamnesis is not always obtainable, often owing to an obtunded mental state. Under these circumstances it is very difficult to determine which side was last occluded. A valuable aid is the study of the abdominal reflexes, the rigidity usually being on the side demanding calculus extraction.

Forms of bleeding kidney designated as essential hematuria, angio-neurotic kidney, renal hemophilia and hematurie nephralgique, in the light of modern methods are known to be but forms of nephritis. The one simulating stone, in which the colic and bleeding are one-sided, not infrequently is the forerunner of a chronic interstitial Bright's.

Where the hemorrhage is of long duration, with or without pain, and unilateral, it not infrequently eventuates in a fully formed Bright's, with all its physical and clinical characteristics. My records show quite a number of such cases.

Both the colics and hemorrhages are congestive in character and not necessarily due to blood clot obstructions.

Renal hemophilia is a chimera, though I have seen renal bleeding and colics where the renal process was but part and parcel of a general hemophilja. It must not be forgotten, however, that certain parasites and circulatory disturbances due to valvular and other diseases may occasion hematuria, which I am quite sure no astute clinician would overlook.

In the presence of a more or less continuous hemorrhage, with or without pain, where the findings are not sufficiently definite to precisely establish a diagnosis as between tuberculosis, neoplasms or Bright's, an exploration is not only warranted but positively indicated. This is as true here as anywhere else in the organism. It may prove exploratory, confirmatory, and, finally, what is of more importance, positively curative at a time where procrastination might have destroyed the chances of the patient.

Writing on neosalvarsan, Rytina of Baltimore, says the clinical results are just as effective, if not more so, as those of salvarsan and the injections are free from severe constitutional and local reactive phenomena.

HYGIENIC AND DIETETIC MANAGEMENT OF GENITO-URINARY AND VENEREAL DISEASES.

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Perhaps disorders and derangements of the digestive system require for their successful management more direct attention to dietetic principles than any other class of diseases. This must be especially true of those involving the stomach, liver, pancreas and that portion of the small intestine concerned in the transformation and assimilation of the fluids and solids ingested. The selection of the special diet appropriate in each case must ever include in its consideration that important requisite, the nourishment of the patient. Next in order of importance in the matter of diet or ingested materials, must naturally come diseases of the genito-urinary system, which latter as an emunctory with its important excretory function must bear the brunt of all ingested material, eliminated as an excrement, which is not disposed of through the alimentary tract or the skin. That this excretion, the urine, represents the most toxic of all the excreta, is a fact. How long may one live without perspiring? How long may one live without a movement of the bowels? But how long may one live with suppression of the urine? Your experience will furnish an answer. And how may the toxicity of the latter be better emphasized than by recalling the picture of a case of uremia consequent upon acute suppression.

Preventive medicine being the highest attainment in our art, prophylaxis should occupy a pre-eminent position in sanitary science and hygiene, to both of which dietetics is closely allied. With this in view, no system or set of organs in the entire organization, save it be those mentioned in the beginning, can be more surely or effectually safeguarded against derangement through properly selected diet (food and drink) than that under consideration. And when in an altered condition or diseased state they are more directly influenced by what is taken into the stomach than is even this viscus itself, especially is this true of liquids; and the therapeutic influence of medicines and remedies taken into the stomach, is more direct upon this than upon any other system; more so in some instances, I repeat, than upon this receptacle itself and the conduits conveying these medicaments to this system. For example, methylene blue (*sometimes*) colors the stools and produces diarrhoea. And how quickly the ingestion of large quantities of water will lower the specific gravity of the urine without affecting the stomach through which it gains entrance. Along the line of prophylaxis, then, it may be said in a general way that the diet (and by this term I always mean drink as well as food) should be devoid of those things which have a well known tendency to keep the urine either in a state of *continuous* alkalinity or hyperacidity. The deleterious effects of these conditions of urine in producing either an acid or an alkaline cystitis are too familiar to require comment. I am well aware that some authors contend that there must *absolutely* be bacteria present before a cystitis can exist, but it remains a fact that the retention of quantities of urine, of abnormal reaction for continued periods, renders the bladder more vulnerable and susceptible to bacterial invasion and on the whole is conducive to an altered condition of its mucous membrane; and nothing influences the condition of the urine, as I have implied, so much as the ingesta. Both the above mentioned variations in the urine's reaction,

if long continued, are important factors in the production of stone or gravel. A hyperacidity of the urine favors the formation of stones or gravel in which the urates predominate on account of its lowering the ability of the urine to dissolve uric acid and the urates, thereby permitting their precipitation. An alkaline urine disposes to the precipitation of phosphates or carbonates of magnesium and calcium. If a volatile alkali, ammonia, for instance, be responsible for the reaction, triple phosphates of ammonia and magnesium are precipitated.

That these urinary concretions may be largely prevented, in the absence of any obstruction, by a properly selected diet, is rational. That all acute inflammatory conditions of the urinary passages should be protected against the effect of irritating urine you well know, and I know of nothing more efficacious in rendering and in maintaining this secretion bland and unirritating than the ingestion of copious quantities of pure water, augmented by an especially selected and appropriate diet. With this in view, a vegetable diet in a general way is indicated, for a non-nitrogenous diet favors alkalinity of the urine. It must be borne in mind, however, that there are a few vegetables which are to be avoided on account of their tendency to render the urine irritating. For instance, tomatoes, strawberries and rhubarb contain oxalic acid in sufficient quantity to be harmful in inflammatory conditions.

A most satisfactory diet in these conditions, although not absolutely free from nitrogen, is bread and milk. Milk has a mildly alkaline reaction and, if imbibed in large quantities as an exclusive diet, renders the urine either neutral or faintly alkaline. All highly seasoned and stimulating foods are to be left alone in sexual as well as urinary diseases.

At this point it is well to emphasize the baneful influences of alcoholic beverages and tobacco on both classes of affections. In addition to its *general* harmful effect, alcohol, being chiefly eliminated through the kidneys, has an irritating *local* effect upon the entire urinary tract. Through its aphrodisiac properties, it stimulates the entire sexual organization, and in as much as sexual quietude is the desideratum in the majority of functional disorders of this system, its avoidance is here as needful as in the strictly urinary affections.

Tobacco is harmful in a general way through its constitutional effects, but is to be especially avoided by syphilitic patients suffering from mucous patches and secondary manifestations in the mouth and oral cavity, on account of its direct local effect upon these lesions. This is equally true of both chewing and smoking. As to the diet of leuitics, the requirements are somewhat different from those applicable to genito-urinary affections. Unless especially contraindicated, their diet should be as rich and highly nutritious as possible, owing to the impoverishment of the nutrient media, through the devitalizing influence of the syphilitic virus as well as that of the therapy applied in its eradication (mercury and iodides). This applies also to cachectic patients suffering from chancroidal phagedena.

Although not classified as genito-urinary affections, the dietetic management of the various forms of Bright's disease and diabetes is of paramount importance, equaling and in some instances exceeding in value all other therapeutic measures. Under the head of the hygienic management of this class of affections comes the prevention of the communication and spread of those special ones which are known to be highly contagious. Naturally the most efficient means of pre-

venting venereal disease would be the suppression of venery or at least the regulation of prostitution in all of its guises. I emphasize this latter, for it has been my experience that clandestine prostitution is responsible for more venereal diseases than that carried on through regular and well known channels. But this is a subject as old as sin itself, and is as unfeasible and as ineffectual to-day as it was at its promulgation; hence we must resort to measures more applicable.

Foremost in limiting such diseases among men is circumcision. The fact that in our experience as specialists most of our venereal patients have long prepuces is evidence of its predisposing causal relation. The difference in the susceptibility between a dirty, tender, sensitive, smegma-bathed glans and the one covered with epithelial cells of almost epidermal resistance, when exposed to a possible source of infection, is too patent to be disputed.

Next in importance in protecting the uninfected is the instruction of your patient, in the most serious and sincere manner you can command, of the *absolute necessity* of his enforced continuance until you pronounce him well. It should seem superfluous and unnecessary to do this, but our experience is to the contrary, for we are daily astounded by the flagrant disregard of this admonishment. The unreliability of some precautionary measures such as the uses of condoms, etc., has been proven. A little suggestion of F. Buret strikes me as being good: the thorough covering of the genitals, especially the glans penis, with a thin film of vaseline prior to intercourse with an individual of doubtful habits. The impermeability of grease should guarantee its efficacy. Unquestionably, a thorough cleansing of the parts with warm water and soap and a rinsing with an antiseptic, such as a 1 to 4000 or 5000 bichloride solution externally, and flushing out the urethra by urinating, reduces the chances of infection to a minimum, and a *thorough* douching of the vagina after intercourse and occasionally during the interim, is so essential that regular prostitutes, recognizing its commercial value in protecting their health, invariably practice it; hence the fewer number of diseases from this source. A copious quantity of warm water thus used is efficient; the addition of some antiseptic renders it doubly so. A daily vaginal douche should be a part of every married woman's toilet. In short, absolute cleanliness at all times is one of the greatest safeguards. Your gonorrhoeics should be warned of the virulence of their discharge and especially against transmission to the eyes, and instructed to change frequently the dressings, cotton or gauze, and burn them. It is remarkable how carefully your tubercular patients are instructed to expectorate into especially designed destructible cups and how carelessly gonorrhoeal patients are permitted to throw their discarded dressings wherever they choose. Many devices have been suggested for the use of gonorrhoeics for the collection and disposal of the discharge from the urethra, which is oft-times profuse and always filthy, contagious and dangerous, all of which are inadequate for the purpose intended. Most common is the insertion of a piece of cotton within the prepuce, should the victim be the unfortunate possessor of that unnecessary and undesirable appendage. 'Tis plain that this soon becomes matted and glued over the meatus, causing the retention of a quantity of virulent pus in the canal which should have free drainage. Other schemes are the wearing of a bandage, an inconvenient thing to be compelled to remove each time the patient urinates. Tobacco pouches, etc., if tied sufficiently tight to remain on, are clearly deleterious. Suspensories with an auxiliary flap

for holding the penis keeps the latter in a cramped, uncomfortable position, unfavorable for drainage, and are expensive. I have devised a venereal bag which the Kahama Chemical Company is making for me, and more clearly meets the desideratum than anything I have yet seen. It is also serviceable for the retention of dressings of chancroids and other venereal sores so situated that a bandage cannot be applied, and it may also be used as the outside or final dressing for a circumcision where it is desirable to keep the dressings clean and protect the newly exposed and sensitive glans from friction with the clothing until the latter has become inured. Not the least of its commendable features is its inexpensiveness, which permits its frequent removal.

The precautionary instructions to your syphilitics must be more extensive though no less explicit. They must be given to understand that this being a constitutional disease, their blood and various secretions are saturated with its virus and that a syphilitic sore upon the finger or upon the lips or elsewhere upon their body is just as capable of communicating the disease to others as would be a sore upon the genitals; hence the frequent extra-genital infection from syphilis, or *syphilis insontium*. They must be warned of the possibility of transmitting this disease outside of the sexual act, something that very seldom occurs in the course of the other two venereal disease, i. e., gonorrhoea and chancroids. With this constantly in view, they will especially avoid kissing, or permitting members of their household or others to use things in common with them, especially anything that has come in contact with their mouth, such as cups, knives, forks and spoons, lead pencils or pipes, for, while they may be free from mucous patches at the time, it is a mooted question whether or not the physiological secretions of the mouth may not be infectious during the active stage of syphilis. Of course patients suffering with postular eruptions or other open lesions should be exclusive in the use of their own articles in connection with the bath towels, soap, wash cloths, brushes, etc. And, as strange as it may seem, a certain class of persons are to be particularly instructed in the exclusive use of the tooth brush, for only yesterday, when I advised a patient of French antecedents to secure a soft brush which would not cut and injure his gums, he replied that his mother had a nice one which she had brought over from France (she had lived in this country some twenty years, but the handle bore a French maker's name), but objected to his using it.

In the hygienic management of syphilitics, baths occupy a place of first importance. The skin with its important excretory function is one of the principal emunctories through which the products of retrograde metabolism is eliminated, and not alone on account of the disease, but because of the medicines administered for its relief, the skin should be kept in the best possible condition. Its tone should be preserved and eliminating function kept up to the highest state of efficiency. Hot baths for cleansing purposes are at all times imperative, many troublesome skin lesions may be thus prevented or modified thereby, and special Turkish or Russian baths at stated intervals are beneficial in the majority of cases, and in but few instances are specially contraindicated. The various thermal baths of high repute depend for their efficiency more upon their heat than upon any intrinsic therapeutic property. This opinion is concurred in by the reputable resident physicians of these places, who assure us that the thermal waters are merely auxiliary to the regular medicinal

and hygienic treatment. The addition of a handful of sea salt found in the pharmacies to an ordinary bath is stimulating and conducive to a healthful condition of the skin. Such splendid and powerful medicines as mercury and the iodides are not to be administered blindly, and their action is to be as alertly watched as is the action of the syphilitic virus itself. The patient cannot be too strongly impressed with the fact that he is running a handicap race and that much of the success of the outcome will depend upon his "resisting qualities," the preservation of his normal opsonic index, as it were, and proper hygiene is the surest way of attaining this.

**A SEVERE CAUSTIC EFFECT PRODUCED
UPON THE EYE BY THE USE OF A
2 PER CENT SOLUTION OF
NITRATE OF SILVER.**

J. HERBERT CLAIBORNE, M. D.
New York.

On April 14, 1913, a youth of 18 consulted me on account of an acute catarrhal infection in both eyes. That of the right was more pronounced than that of the left. In the inner corner of the right eye lay a small piece of yellowish matter. He confessed to a retrogressive gonorrhea.

In pursuance of the treatment, which I have already published in THE MEDICAL TIMES, of acute infection in gonorrheal conjunctivitis, I determined to use a 2 per cent. solution of nitrate of silver at once in both eyes, without the delay occasioned by the examination of the secretion—assuming that the infection was gonorrheal—and having sound reason to believe if it were not, the treatment, while a trifle severe, would completely destroy the infection, whatever it might be.

To that end I placed the patient in my operating chair with his head nearly horizontal and allowed two drops of the same solution of nitrate of silver, which I had previously used in the two cases of gonorrheal conjunctivitis, to roll over the conjunctival surface of the upper and lower lids. No sooner had the silver touched it than the patient gave a start indicating great pain. The eyeball flushed and became fiery red, the conjunctiva of the lids became at first intensely red and then white, as if covered by a membrane. At the same time the lower half of the cornea commenced to get cloudy and a copious flow of tears occurred. I wiped away as much of the solution as I could with a piece of gauze, and called for a strong solution of sodium chloride, which was made rapidly and handed me by my assistant. This was poured freely over the conjunctiva and cornea, and immediately the patient experienced almost as much pain as on the application of the nitrate of silver. In addition, the lids swelled still more, the white lining became thicker, and the lower half of the cornea became so opaque that the pupil was seen with difficulty. The upper half of the cornea remained clear and appeared not to have been touched by the nitrate of silver. While I expected to see the chemical change caused by the formation of chloride of silver, I did not anticipate such great pain, such increase of thickness in the lid, such exudation or such rapid and intense clouding of the cornea. To say that I was alarmed would be to express it mildly. I did not use it in the left eye. I kept the patient in my office for three hours, during which time he had considerable pain, but not

as severe as first. From time to time I sprayed his eye, with both lids everted, with a weak solution of cocain and thymoformol, with the result that before he left for his home I had been able to remove to a considerable degree the whitish scum that had formed on the conjunctiva of the lids. In the meantime the epithelium had been peeling off the cornea, and a sharply defined crescentic edge marked the upper limit of the denuded surface.

I treated the other eye by simply spraying it with the same solution of cocain and thymoformol and ordered antiseptic treatment at home. That eye recovered without any untoward result, and I should judge from this that the infection in each eye was probably not due to the gonococcus, or was that mild form which comes from infection from retrogressive gonorrhea, whether of the urethra or the eye.

The right eye improved slowly under the treatment outlined, together with the constant use of atropin, but at the end of a month the conjunctiva was still quite red. Although the corneal epithelium had become restored, there was a more or less crescentic white line, apparently of infiltration, about 7 mm. in length, across the center of the cornea. On May 15, 1913, the patient had 23/30 vision with that eye and 23/20 in the left. Time will determine whether the infiltration will disappear.

The solution of nitrate of silver used was previously employed in the four eyes saved from acute gonorrheal infection, as published in a former issue of THE MEDICAL TIMES. The nitrate had stood upon my shelf simply with the dropper in the mouth of the bottle for a number of months. From approximately an ounce it had evaporated to a drachm, and there was a slight dark sediment at the bottom. I had this solution sent to Larimore & Company, chemists, of this city, who reported to me that it was found to be 1.95 per cent. solution of nitrate of silver. As the same solution had been used upon the other eyes heretofore described, it must be concluded that the time it had remained standing, together with evaporation, had produced some chemical change that increased its caustic action, or that the patient had an idiosyncrasy against nitrate of silver.

Singularly enough, after preparing this I saw in the April number of *Ophthalmology* a translation by Würdeman from the Japanese, in which Professor Komoto referred to four cases in Korea where a 2 per cent. solution of nitrate of silver had been used by midwives for "eye inflammation," with the production of corneal leucoma. For my part I have read of hemorrhage in the new-born following an installation of 2 per cent of nitrate of silver, but I have never known any such effect as the one I have described. I would certainly not be willing to apply this identical solution to anyone else's eyes.

Owing to the fact that the chemist used all the remaining solution in his investigation, I was unable to make control experiments upon lower animals. Therefore the question involved cannot at this moment be answered. It will be interesting to know if anyone else has seen such a result from the use of 2 per cent. solution silver nitrate.

11 East 48th street.

Diabetic cataract, when in its incipency, may clear up under the antidiabetic diet.

A CASE OF SPINDLE CELLED SARCOMA OF THE TESTIS, WITH UNUSUAL FEATURES.

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New York.

In the *Journal of the American Medical Association*, April 6, 1907, the writer reported a case of sarcoma of the testis. The history of the case, the course of the tumor's growth, its appearance and general conduct, were so different from those of the case about to be reported that a brief review of its most salient features may be pardoned.

In that case the patient was 36 years of age; the growth was seven inches in its longest diameter and thirteen inches in circumference at its widest part. It had been quiescent for ten or eleven years, but only during the last ten months had it attained its maximum size. The only pain experienced by the patient was that caused by the dragging of the heavy mass on the cord and scrotum. The tumor was hard to the touch, except at its upper pole, which gave evidence of fluid being present. After removal of the organ it was found to be a round-celled sarcoma with cystic degeneration. Several months after operation metastasis was observed in the liver, but the patient was then lost sight of, and the probably fatal termination cannot be reported.

The present case is quite different in many respects. The patient is a young man, aged 22. There was no personal or family history of cancer, tuberculosis or syphilis, and there was no evidence of syphilis or tuberculosis after a careful examination. He had an attack of acute gonorrheal epididymitis on the opposite (right) side three years previously, which was made evident by the thickened nodule in the epididymis, but he was positive that the left side was not involved in that attack. Three weeks previously he first noticed that the left testis was larger than the right. The mass grew rapidly for a week and then remained stationary in size. At no time was there any pain or tenderness. There was no history of trauma.

When the writer first saw him on May 19, 1913, through the courtesy of his physician, Dr. M. Lubman, three weeks after the growth was noticed by the patient, the following data were noted: The growth is soft, but not fluctuating; its longest diameter is 5 inches and its greatest transverse circumference is 8½ inches; it is absolutely painless and without tenderness on pressure; it resembles a hydrocele in its pear-shape, but is opaque when examined by the light test; the inguinal glands on either side and the spermatic cord are not involved.

Owing to the extreme rapidity of the formation of this large mass it was deemed prudent to withhold the positive diagnosis of malignant growth until the tumor proper could be examined on the operating table. The writer frankly did not believe that the mass was anything but a rapid accumulation of fluid in the tunica vaginalis, possibly a hematocele, in which the blood had become coagulated and had thus lost its quality of fluctuation. On operation, when the tunica vaginalis was incised, but a few drops of serous fluid were obtained. It then became apparent that the testis itself was greatly enlarged; the tunica albuginea was now opened and the testicular substance oozed out of its shell with great

rapidity. The entire organ had evidently undergone softening and degeneration, and there was practically nothing left but the tunica a few moments after the incision was made. The cord was not involved. After a hasty conference for legal reasons between Dr. Lubman and the patient's father, who was in an ante-room, consent was obtained for the complete removal of the organ. The patient made a quick and uneventful recovery and within a week had left the hospital. Thus far (August 6) there is no evidence of metastasis anywhere. Microscopic examination of the remnants of the testis adherent to the tunica albuginea (Dr. Richard Hoffman) showed that the growth was a diffuse spindle-celled sarcoma.

A review of the literature indicates the comparatively rarity of this particular form of malignant growth of the testis. James Ewing¹ states that spindle-celled sarcoma probably has its origin in the testis, "but it is rare and its exact origin uncertain." He also states that the evidence points to the conclusion that with relatively few exceptions tumors of the testicle belong in the embryonal class and that the great majority, or possibly all of these embryonal tumors are of teratomatous origin.

Of 2,170 malignant tumors examined in St. Thomas' and Middlesex Hospitals, London, Corner² reports but thirteen cases of malignant growth of the testis, and in all of these the growth was a sarcoma. Most writers believe that sarcoma of the testis is more common than carcinoma. This view is probably based largely upon the statistics collected by Kobler³ and quoted by Chetwood⁴ and Watson and Cunningham⁵. In a study of 114 cases of sarcoma of the testis, Kobler found that 71 per cent. were observed in men between 21 and 50 years of age; of 75 tumors examined histologically, 65 per cent. were round-celled or mixed-round and spindle-celled varieties, and the remainder were of the alveolar cystic or spindle-cell type. Virchow⁶ believed that sarcoma was found only in early childhood and old age; this view is not sustained by most other writers, who have observed these tumors in all ages. A carcinoma of the testis is reported by Corner² in a boy of five years.

Usually these malignant growths are of slow grow. In the writer's case the predominating feature of interest lies in the markedly rapid growth which took place in the period of one week. This, combined with the softness of the tumor, conforms with the statement of von Bergmann⁷, that the more rapidly growing sarcomata are softer, and those which remain quiescent are hard. He maintains, however, that spindle-celled sarcoma is usually firmer than the round-celled type, and often contains striated muscular fibers.

The etiology of these tumors is largely in doubt, though most writers believe that trauma plays an important part in their development. Kobler (loc. cit.) found that a history of trauma was present in 43 per cent. of his cases. Imperfect descent of the testis is another ascribed cause. In the present writer's case neither of these factors was present. When the tumor grows rapidly it is apt to be very painful, owing to the compression of the testicular substance within the unyielding tunica albuginea; if it grows slowly, the tunica stretches and the clinical course is usually painless. In the present case, notwithstanding the very rapid growth of the tumor, there was no pain or tenderness at any time.

These tumors vary considerably as to their degree of malignancy. Broadly speaking, there are two varieties of sarcoma, the soft and the hard; the softer the tumor, the more malignant it is (Casper⁶). The testis is first attacked, then the epididymis, and finally the tumor breaks through the tunica albuginea, proliferating rapidly into the scrotum and through its coverings. They also extend upward along the cord to the inguinal glands, becoming widely disseminated and giving rise to metastases throughout the body, particularly the lungs, liver, kidneys and the brain.

In concluding this report the writer would point out the following interesting and unusual features of this case: (1) its extremely rapid growth; (2) its absolute painlessness; (3) the absence of trauma or other visible etiologic factor; (4) the universal degeneration of the testicular substance; (5) the comparatively rare form of tumor—spindle-cell type.

¹ Ewing: Surgery, Gynecology and Obstetrics, Vol. XII, 1911, page 253.

² Corner: Male Diseases in General Practice, 1910, page 201.

³ Kobler: American Journal of the Medical Sciences, Vol. CXVII, 1899, page 535.

⁴ Chetwood: Practice of Urology, 1913, page 327.

⁵ Watson and Cunningham: Genito-Urinary Diseases, 1908, page 239.

⁶ Casper: Lehrbuch der Urologie, 1910, page 349.

⁷ von Bergmann—Bull: System of Practical Surgery, 1904, page 714.

113 East Nineteenth Street.

Treatment of Syphilis by the Combined Salvarsan-Mercury Treatment.

Profs. W. Scholtz and D. E. Riebes, of the Polyclinic for Skin and Venereal Diseases of the University of Königsburg, remark that they have repeatedly drawn attention to the remarkable curative effects of the combined treatment of syphilis with salvarsan and mercury, and have pointed out that they are able to obtain surprisingly good lasting effects. They are convinced of the possibility of curing primary and secondary syphilis with one single treatment, as suggested and used by them. On account of their experiences they think themselves justified to claim conditionally a cure of syphilis in these cases.

The method originally used was to inject on two subsequent days moderate doses—about 0.3 grams salvarsan—followed up with an intense mercury treatment (combined inunctions and injections). Then the same salvarsan treatment is repeated with another mercury treatment. The principle is to keep the salvarsan in the circulation for a longer time.

Within the last year this method was modified so that the authors gave at least three injections instead of two and very often four salvarsan injections were given on two successive days. They now give at 9 a. m., 0.3 grams salvarsan, and between 12 and 1, 0.2 grams. The following day in the morning 0.3 grams is administered and in some cases 0.25; at noon 0.2 or 0.15, so that the patient is given between 0.9 and 1.0 gram salvarsan within two days (strictly speaking 28 hours).

In cases where they inject only three times, they usually give three times 0.3 gram. Only in weak patients and in women, do they reduce this dose to 0.8 gram, which is given as a rule in three injections. If there are any contraindications against even medium doses of salvarsan, such as prodromal symptoms, headaches, marked symptoms of cerebral lues, fever or albu-

minuria, they begin with 0.2 or even with 0.15 gram and only increase the second dose if the first dose is well tolerated to 0.25 or 0.3 or give instead four injections of five smaller doses. They assume that salvarsan acts energetically as long as it circulates as such. This, however, is only the case from 3 to 4 hours after an intravenous injection, no matter whether 0.3 or 0.4-0.6 gram have been injected at once. It is of course possible to obtain a definite cure with salvarsan alone if the injections are repeated often enough, but occasional observations have shown that the combination with mercury is at least of great advantage and that the combined treatment, even if badly carried out, shows far better results than a mercury treatment alone. The authors were able to control their cases very well, and draw from this material these conclusions.

The permanent results obtained with the combined salvarsan-mercury treatment carried out as described, justify them in saying that with this treatment a definite cure of the disease will be obtained in the majority of cases.

The percentage of cures with this combined treatment is in primary syphilis, even with an already positive Wassermann reaction, from 90 to 100%; in early secondary syphilis, from 80 to 90%.—(*Deutsch. Med. Woch.*, No. 30, Vol. 39, July 24, 1913.)

The Cutaneous Reaction in Syphilis.

Julian Mast Wolfsohn, of San Francisco, states that it is only after many inoculations have been done that any reliability as to the technic and interpretations of the reactions can be placed. Many inoculated patients present what at first sight appear to be positive reactions to the Noguchi luetin, but on closer inspection are seen to be only more or less inflamed areas, with no characteristic infiltration whatever. This type of reaction rapidly subsides and within seventy-two hours has disappeared. The test has given much gratification at the Presidio General Hospital in San Francisco, especially the tertiary cases associated with a negative Wassermann reaction. The types of reaction are the papular, vesicular, pustular and torpid. To these may be added a fifth, the hemorrhagic variety, which sometimes occurs in patients presenting myocardial insufficiency primarily due to a syphilitic cardiopathy. Certain anomalies in the luetin reaction are occasionally noted. Thus in one of Wolfsohn's cases a large hemorrhagic pustule appeared at the site of the injection four months after inoculation. In another case it was noted that in a case in which syphilis was merely suspected, and which before inoculation gave a negative Wassermann test, a positive Wassermann reaction was obtained after inoculation. This raises the question whether or not a positive Wassermann may be caused by the administration of luetin. Wolfsohn offers the following conclusions:

1. The results of all observations substantiate the specificity of the luetin reaction for syphilis.

2. Intensive antisyphilitic treatment in the later stages of syphilis may produce a negative luetin reaction which, after an interval in which treatment is withdrawn, may become positive.

3. Treated congenital and secondary syphilis is apt to give positive luetin reactions.

4. The luetin reaction is especially valuable in parasymphylis, and tertiary and latent syphilis.

5. In any case of suspected syphilis, whether previously treated or not, a negative luetin reaction must be watched for at least four weeks so as not to overlook a delayed reaction.—(*J. A. M. A.*, June 14, 1913.)

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Genito-Urinary Surgery.

The growing importance of genito-urinary surgery is manifest on every hand, as the necessity for this particular branch of surgery is noted. The urologist was not considered a bona fide specialist in the dark days when the blasé young man of the period considered his education unfinished until he had contracted gonorrhea and classed the disease in the category with a coryza. This was due largely to the fact that advertising charlatans caused the treatment of venereal diseases to be considered the work of the lost manhood quack.

Then we looked through a glass darkly, but to-day we see face to face. The medical profession realizes that in gonorrhea it is confronted with a disease more harmful to the human race than smallpox, diphtheria, cerebro-spinal meningitis and many other serious diseases combined. It knows that gonorrhea is the precursor of sterility, blindness, paralysis, miscarriage, degeneracy and insanity and that it is as deadly as a plague.

Syphilis was for countless ages the world's scourge but Ehrlich has drawn the venom from the serpent's fang and it is no longer the most dreaded of our ills.

To successfully treat the medical and surgical affections subsequent upon these diseases required the skillful attention of men especially trained in this branch, so there has arisen a highly specialized body of physicians ministering to the ailments of the genito-urinary tract from kidney to meatus.

This issue of THE MEDICAL TIMES is largely given over to a discussion of urological conditions and we are glad to take this means of calling the attention of our readers to the great field of endeavor which genito-urinary surgery has opened up and to its marked importance in the treatment of the diseases of the human economy.

Home Care of the Tuberculous Poor.

The experiment of the Association for Improving the Condition of the Poor, namely, the leasing of a number of apartments in which were properly housed twenty-seven family units with seventy-nine tuberculosis cases and fifty-six tuberculosis candidates, achieved marked success, and points the way to a more rational management of the tuberculosis situation on a large scale. There have been 61 per cent. of apparent cures and 22 per cent. have been arrested. The significance of these figures lies in the fact that they are superior to sanatorium statistics. The non-tuberculous children are said to have lost the tenement house faces and a general gain in weight has taken place. Nursing and medical attendance were provided, industrial efficiency kept up, the family income maintained, infection controlled and psychic factors looked to. Indeed, the favorable environment itself exercised a potent influence in respect to the psychic element. The cases were of course picked with a view to incipency.

Since it is manifestly impossible to care for all the cases at the sanatoria, which are few in number and of small capacity, and since it has been clearly demonstrated that the Association has found a far superior, sociologically and medically considered, method of handling the numberless worth while victims of this disease, why not devote our energies to the expansion of this rational method? The preservation of the family unit in a decent home, and this on a large scale, would be no more costly than the provision of sanatorium care. The advantages are great sociologically and in respect to the recovery rate. Even when a patient is sent to a sanatorium he is, as a rule, kept for only a few months. He receives a good education in the dietetic, climatic and hygienic principles of treatment, and is then returned, practically always, to the environment responsible in large part for his original breakdown. The Association is to be heartily congratulated on the success of its experiment and it is our earnest hope that many municipalities, and particularly the metropolis, will see a ray of light and feel a generous impulse. Strong words could be spoken in respect to the present tuberculosis situation. We hope that the disgrace of it will not be permitted to deepen any further and that the necessity for harsh characterization will disappear.

Education of the Young in Matters of Sex.

Dr. Charles W. Eliot, Harvard's President Emeritus, does not think that sex knowledge has much influence in fostering chastity, and says that the medical student, with all his knowledge, is not more chaste than any other young man of the same age.

Talmey, in discussing this opinion in a recent issue of the *New York Medical Journal*, emphasizes very soundly, we think, the necessity of beginning our missionary work in the nursery. The drunkard's knowledge of the injurious effects of alcohol upon his soul and body cannot offset his impaired will. This is a familiar phenomenon. He must be taught to be temperate before he becomes a drunkard. Lessons in sex matters must be given quite early. Talmey thinks it is the height of absurdity to give lectures on sex problems before classes in high schools. As to books on such matters, by the time a child is able to understand such books it knows more of sex than the book can teach. These books show a touching naïveté.

Talmey thinks that boys who have passed puberty before they have had the opportunity of receiving proper instruction in sex matters need altogether

another kind of instruction, namely, lessons in personal prophylaxis, which may save their wives and children from lives of invalidism and even from death.

We think that Talmey comes about as near as it is possible to a rational program of sex education. He hates to see sexual hygiene become the "virtuous naughtiness" of the hour, as H. L. Mencken calls it, because of the dominance in these matters of prudes and moral hypocrites. That is what it is, and thanks to the triumphant control of the puritan, a precarious situation exists.

We have thought ourselves obliged to accept the puritan's scheme, because we cannot take the children who are the products of our false parental moral standards and teach them the whole truth, for such teaching would only intensify latent perils. Our sex education is bound to be weak because no pedagogy can make up for the neglect to instruct in early life. The only difference between the puritan's scheme and the teaching of the whole truth is that the "virtuous naughtiness" of the puritan is less harmful to our peculiarly trained children than the teaching of the whole truth would be. Yet our children could bear the light if started right. Probably it would be better not to attempt the teaching of sexual hygiene at all, so long as things remain as they are, since only the feeble-minded or those abnormally late in developing erotic consciousness remain unharmed by it.

There is a deadline at which our defective pedagogy ends and the lure of life's greatest elemental force begins to exert, in the badly trained, an overwhelming influence. Great as this influence is, even in the well trained, it should not overwhelm us at all points and at all times. Men either master it reasonably well or are mastered by it. But after all is said and done, it would seem that as we have reached the conclusion that the only practical way to prevent milk infection in great cities is to pasteurize all the milk, however much we would prefer pure sources of supply, so we must conclude that personal prophylaxis must be our sheet anchor against venereal disease, for all our lessons in sex education will not improve the conduct in life of our pupils, at least so long as we defer such lessons until the pupils have reached the age of puberty, or even the post-nursery period of life. And yet, although this situation is due to the puritan, he will resist any attempts at rational prophylaxis. Truly is this nuisance and Pharisee always with us, obstructing progress and reform.

The Fundamental Causes of Feeble-mindedness.

The memorial recently addressed to the Home Secretary of England by Osler, Allbut, Schafer, Barlow, Halliburton, MacAlister, Turner and other biologists and physicians, in connection with the Mental Deficiency Bill, advises "continuous prosecution of research into the conditions upon which such deficiency depends." After mentioning the relation between thyroid insufficiency and cretinism as an example of what might be learned about other forms of deficiency, the memorialists offer the suggestion that "the conditions in question must be due either to defective formation and development of the active structures of some portion or portions of the brain, or to defective formation or supply of the fluids by which these structures are surrounded, and by which they are stimulated to activity." This is very ponderous, very British, and, if we may be permitted, very bromidic. In these progressive days it sounds strange and unimpressive. We may depend

upon it that the foregoing words were strung together by some war horse of the Victorian era.

Some will say that it may not have been within the province of the memorialists to go farther than they did, but it is our own belief that it never occurred to this Pickwickian exhibit to refer to certain well-known sociological factors of fundamental and essential character. No question of propriety or province is involved, in all probability. The eighteenth century good taste of these gentlemen was not under any strain, we may well believe.

In this age such pronouncements are anachronistic when they take no account of the many generations of industrial and land exploitations and bad hygiene. These must be reckoned with. It is not enough to study "defective formation and development," which are largely end-results. It would seem that many of our most distinguished "leaders" are still relatively oblivious to the fundamental factors of racial degeneracy and decadence, and in so far only retainers of the feudal-like barons who ordain the "defectively formed and developed" social order.

This reminds us of the wholly enlightened attitude of Lord Lister, as revealed in a paper on the future of state campaigns against tuberculosis, read by him at the recent Public Health Congress in Paris. In this paper Lister emphasized the universality of tuberculosis and the immunity acquired through general tubercularization, and pointed out that it is the loss of this acquired immunity that constitutes "the real social disease which causes mortality from tuberculosis." He further showed that "the campaign against tuberculosis should aim at preserving this immunity by improving social conditions rather than at attempting the difficult task of preventing infection, which is not only ubiquitous in its distribution, but itself seemed to bring about an acquired immunity in nine-tenths of the population." In Lister's opinion the future of state campaigns against tuberculosis is a matter more for the social reformer than anyone else.

The fundamental cause of feeble-mindedness, of tuberculosis, and of a whole host of other "economic diseases" are not to be looked for in laboratories by savants whose social vision is defective. It would be far better, instead of forever feeding thyroid extract to cretins, scientifically interesting and successful as that may be, to make the occurrence of cretins a very remote contingency through decent conditions of life. As Mr. Roosevelt said in his Newport address on July the second: "It is vital to remember always that in dealing with a great wrong what is necessary is to do away with the conditions that create the wrong." This advice has medical as well as political connotations.

General Wood's Plan.

Our entire admiration goes out to General Leonard Wood, Chief of Staff, United States Army, for his formulation and execution of the plan whereby the young college men of the country are gathered together in military camps and trained in military matters during the vacation period. There is a positive genius in this manner of utilizing the best brain and blood in the country, and the good results will be incalculable both as regards the young men themselves and the nation. The peace advocates who would carp at this plan are hopeless indeed. If they cannot see the bearings of it upon the manhood, health and efficiency of our youth they will alienate yet more our rational sympathy for their cause, in so far as the arguments for peace are sound. The disgust aroused by such a spirit endangers even fundamental agreement.

Medical Editorial Table

The Crux of the Economic Crisis.

From one angle of view the medical profession seems to be living under a *quasi*-socialistic dispensation without rational economic adjustment. We are partially socialized in spirit and in practice, and are actually giving much the same character and quantity of service to the relatively poor citizenry that we would be required to give under a socialistic government—with this difference, that we are not paid for it. Certainly we are very busy attending to the sick in hospitals and dispensaries and other places. This work is done gratis when every rule of reason tells us that service should never be free. Free service is worthless and the givers are mentally defective. It is even worse than worthless; it is immoral, for the medical profession has economic obligations to others than themselves. It has its own dependants, homes to keep up, culture to add to constantly, recreations to seek for health's sake, and new medical learning and skill to acquire. Yet its members act as though they were above economic considerations and unaffected by the operation of the law of supply and demand. Its altruism has even seemed to increase, of late. It would seem that groups as well as individuals may be the victims of psychoses. So, finally, although medical men are but little interested in the dry subjects of economics and sociology, they are actually applying in practice certain socialistic principles, quite as zealously as though they actually were enthusiastic socialists.—(*Long Island Medical Journal*, July, 1913.)

The Cocain Evil.

The federal food and drugs law has done something and might do more to end the indiscriminate use of this most dangerous of habit-forming drugs. Hereafter every sale in this country of cocain or the leaves of the coca plant, however trifling, must be put on record with a sworn affidavit as to the proposed use. Then the government will have a means of regulating the sale of this drug so that it may be obtained only for legitimate medical purposes. From one hundred to two hundred and fifty thousand persons in this country are addicted to the use of cocain in one or another of its forms. About ten times the quantity actually required in medical practice has been in use. Under that section of the pure food and drugs law which prohibits the importation of any drug or its products dangerous to the public health it has been possible to uphold the contention of the Bureau of Chemistry that the importation of cocain for other than medical purposes constitutes an illicit traffic. This action has been rendered possible through steps taken by the Secretary of the Treasury, the matter having been called to his attention by officials of the Department of Agriculture. The decision makes feasible a much more definite attack against the evil of cocain than has hitherto been possible. "Eternal vigilance" is the price which must be paid for the abatement of such evils.—(*Boston Med. and Surg. Jour.*, July 10, 1913.)

The Abuse of the Uterine Curette.

For many years the belief was accepted, and it still prevails in the rank and file of practitioners, that leucorrhea is usually caused by "endometritis" and that its proper treatment, in persistent cases, is curettage of the uterine mucosa. Leucorrhea proceeds as a rule from cervicitis or adnexal disease. Endometritis, as com-

monly conceived, does not exist. There is little excuse for curettage as a routine procedure in all plastic operations on the cervix, vagina and perineum, either on the part of those who ought to know better. This is no more rational than would be the curettage of the nasal mucous membrane as a part of an operation for hypertrophied turbinate of polypus. But the worst of curettage is that it is not only useless in the cases cited, but capable of great harm in infected cases, post-partum and post-abortion. In these conditions the sharp curette becomes a weapon of great danger. Fragments of secundines do no harm and in time come away spontaneously, if the local management has been aseptic. If a portion of the placenta is unexpelled it should be removed with the gloved fingers or a dull instrument. Routine curetting, after full term delivery or abortion, as a treatment for bleeding or pyrexia, is bad. Probably half of all abortion cases are curetted. Many of these are infected and the bad results are seen later in hospitals and dispensaries. R. T. Frank has studied large numbers of these cases and finds that those treated conservatively are only about half as likely to develop inflammatory conditions as those treated by curettage. They also become pregnant more readily and carry to term more frequently than curetted patients. The most important service of the curette is in the management of menorrhagia, metrorrhagia, and, especially, hemorrhages after the climacteric. Here curettage is often very useful, not only therapeutically, as in the metrorrhagia of submucous fibroids, but especially diagnostically, as providing a means of early microscopic diagnosis of malignant growth.—(*Am. Jour. of Surg.*, July, 1913.)

Hookworm Disease.

In the three years past upward of 400,000 hookworm patients have been taken care of by the Rockefeller Commission for the Eradication of Hookworm Disease. In 1912 an average of 762 were treated every day, except Sunday. In October, November and December last 108,892 were treated. The medication is by thymol and Epsom salt or castor oil, and it is almost invariably effective—at a cost of 77 cents the patient. Something over one-half the rural children examined have been found infected; many of them and their parents were destitute and well nigh over the edge of pauperism. And yet, though the poor suffered most, the well-to-do have been found by no means exempt; thirty per cent. of students at the University of Georgia, many of them of families of social distinction and material resources, were found affected. There is now a superb spirit of mutual helpfulness throughout our eleven Southern States concerned which promises well for the eradication of this devitalizing disease and for the physical, psychic, and economic restoration of those who have heretofore been its victims. The disease does not prevail above the thirty-fifth parallel of latitude, except among miners and brick and tunnel workers. The objects of the Commission have been, and are, to determine the area and the degree of hookworm infection, to treat the sufferers, and to remove the source of infection by putting a stop to soil pollution. Local physicians, State and municipal health departments, churches, boards of trade, women's associations, and the ever-helpful lay press, have most loyally, earnestly, and efficiently worked with this commission since its inception, and its revenues have been supplemented from moneys contributed, according to their abilities, by the communities benefiting.—(*N. Y. Med. Jour.*, July 5, 1913.)

The American College of Surgeons.

Beyond all reasonable doubt, the birth of the American College of Surgeons marks an epoch in American surgery. Five hundred surgeons of all specialties, representing every large centre of population, every important university city with a teaching faculty of medicine, every special and general society representing a specialty of surgery, all the important surgical clinics and hospitals, besides many independent surgeons from all parts of the North American continent have consented to become founders. This means that the time has arrived when concerted action must be taken to protect the public seeking the services of highly specialized practitioners. It is, in one sense, an unfortunate fact that the laws of our country do not permit federal incorporation of a body such as the American College of Surgeons; it is even more unfortunate that State laws and a broad spirit of democracy militate against limiting the activities of men in accordance with the actual qualifications. On only one basis can the medical profession hope to limit the scope of specialism to specialists of established fitness. That basis is tradition. The founding of the American College of Surgeons is a step in the right direction, and if the founders and fellows will but realize that, at best, tradition is established only by slow grades, at an almost imperceptible pace, their hopes are certain to come to fruition. Their wisdom in making their society inclusive rather than exclusive, in enlisting the support of all the allied surgical specialties, in attracting the men who now stand for the best in American surgery, and finally in securing as their managerial aid in organization, Franklin H. Martin—all this tokens success in a venture that means supremely much for American surgery in days to come.—(*Interstate Med. Jour.*, June, 1913.)

The Bacterial Origin of Scurvy.

Another blow has been given by modern methods of research to theories which are so old as to have a vested right in medicine. We have been convinced for several centuries that scurvy is purely dietetic, and as a fact the evidence is overwhelming that proper feeding has prevented it and cured it. Yet W. Morton Hewetson has shown that our accepted ideas in regard to scurvy are wrong. Noting that antiscorbutic food often failed to cure the scurvy that was disabling certain South African workmen whom he had been commissioned to study and treat, and noting that the disease was not so prevalent among the tribes which did not mutilate the teeth and who had healthy mouths, he began to investigate whether scurvy could be cured by curing unhealthy mouths. He succeeded almost invariably by simply keeping the mouth clean and without making the slightest change in the diet, while the controls on antiscorbutic diet did not get well if the teeth were not brushed and the mouth cleaned. He found scurvy prevalent among the negroes who had abnormal apposition and caries from the custom of extracting or filing down the incisors and canines. Then came the collection of tartar, fetid breath, and acidity of the mouths from the presence of acid forming bacteria, which are rare or absent in healthy mouths. He concludes that scurvy is a bacterial toxemia, due to "a specific bacterial invasion of the tooth sockets and periodontal tissues," and that the "condition known as scorbutic gums is purely and simply a local inflammation." Thus diet is merely a predisposing cause incapable of itself of causing the disease which never appears without the infection.—(*American Medicine*, June, 1913.)

THE GETTYSBURG VETERANS' ENCAMPMENT FROM A MEDICAL STANDPOINT.*

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The great encampment of Union and Confederate veterans at Gettysburg, June 29-July 6, commemorating the 50th anniversary of the battle of Gettysburg, was as striking as the conflict itself, although in a markedly different manner. The three days' battle was one of the bloodiest ever fought.

During the engagement 170,000 men participated on both sides and of these men 5,664 were killed, 27,206 wounded and 10,584 missing. Many of the latter were imprisoned and later died, swelling the number of the dead.

Very few battles between the armies of civilized nations have resulted in such an enormous number of casualties.

This is the horrible side of warfare.

The transformation, as exemplified by the "second battle of Gettysburg," is startling. Sectional hatred gave way to brotherly affection. The hundreds of cannon, which on these memorable days of 1863, belched forth iron instruments of death, and mowed down the flower of both armies, stood in 1913 in stately silence, surmounting the battle-scarred ridges as grim reminders of other days. The roar of cannonading, the screeching of shells and the whistling of rifle bullets gave way to the cheers of the old soldiers who once fought one another. The only sound of guns was heard when some dignitary arrived and was saluted.

Pickett's bloody charge of 50 years ago was duplicated when a few hundred old Confederates, survivors of that awful slaughter, with steps faltering from the infirmities of age, charged across the open field and were met at the Bloody Angle by their former Union antagonists, who received them with outstretched arms and hearty hand shakes.

The sentiment displayed by these hardened old veterans of many battles was beautiful. As eye looked into eye these former enemies grasped hands and pledged renewed fealty to a common flag and a common country.

From a medical standpoint the transformation was astonishing.

According to the best estimates the second day of the encampment saw 57,400 men in the camp and it is safe to say that at least 40,000 men were there each day for seven days. These veterans were gathered from the four corners of the country and many had traveled from three to six days to reach Gettysburg.

The average age was over 70 and the extreme temperature, especially on the battlefield, where most of the veterans spent their time, was killing, yet despite the heat, excitement, change of scene, water, food and air, and the advanced age of the participants, only nine men out of that vast assemblage died. This indicates an annual death rate for the period of 10 per 1,000 less than the normal death rate for any community of any considerable size. Medical observers with no connection with the army, who were present at the encampment, were astonished at the low mortality.

The paucity of deaths is due in large measure to the completeness of the plans for the care of the sick made by Surgeon General George H. Torney, U. S. A., and his staff in Washington, and carried out under the expert direction of Lieut. Col. Alfred E. Bradley, U. S. A., chief surgeon of the encampment. Although he had

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SOME OF THE MEDICAL RESERVE CORPS OFFICERS.

Top Row, Left to Right—Lieuts. Slee, Klauder, Mittelstadt, Hume, Fitch, Wilcox, Crampton, Baketel, Magill, Lee.
Second Row—Lieuts. Kraker, Eckert, Beach, Brickner, Kiefer, Fox, Darlington, Hays.

just returned from the Philippines and had scarcely been located at Governor's Island when ordered to Gettysburg. Col. Bradley performed his duties admirably and to his skill and constant vigilance is due in great measure the healthfulness of the encampment.

In making provision for the care of the sick and for the sanitation of the camp, it was thought that the advanced age of the men, the season of the year, the long journey and the excitement would result in unusual morbidity and probably a high mortality. As 55,000 veterans were expected it was determined that hospital accommodations for at least 1,000 should be provided, based on minimum requirements. Arrangements were also made for the use of the hospital cars of the Pennsylvania State Department of Health for the evacuation of the sick, as it was believed that the field hospitals might become overcrowded, or that certain cases would require transfer to civil hospitals, or that other cases would remain in field hospitals after the termination of the encampment. As a matter of fact it was necessary to transfer only 16 cases.

The medical department of the army made all arrangements for the hospital equipment and sanitary personnel. As it was not possible to supply sufficient number of medical officers to meet the requirements of this great camp from the number of regular officers available, the War Department issued orders calling into active service, for this occasion, a number of officers of the Medical Reserve Corps, an innovation that seemed to warrant future service for these officers.

The personnel actually on duty at the camp consisted of 25 officers of the regular medical corps and 24 officers of the reserve corps. The enlisted personnel numbered 239.

The plan for the sanitary control of this camp was laid on the line of a mobilization camp, and the plan for the care and disposition of the sick on the formation for a battle. The following is a scheme of the battle and camp formation:

Battle.	Camp.
1. First aid stations.	1. First aid stations.
2. Dressing stations.	2. Regimental hospital.
3. Field hospital.	3. Field hospital.
	Ambulance companies.

There were provided two field hospitals, the normal capacity of each 108 beds, and three regimental hospitals, normal capacity 9 beds, but additional equipment was obtained to enable an expansion of these hospitals to 412 beds for each field hospital, and 100 beds for each regimental hospital.

A provisional ambulance company was organized by the concentration of 12 ambulances from various posts in the Eastern Department, with 48 draft mules and 11 riding horses. Two automobile ambulances were also brought from Walter Reed General Hospital, Washington. The ambulance company responded to 741 calls and transported 1,100 patients during the days of the encampment.

It was thought that early attention and prompt treatment to the suffering veterans might avert serious consequences, so with that thought in view 11 first aid stations were established in the camp, which, with the 5 hospitals and Fifth Infantry Infirmary, made 17 available points where first aid could be obtained. Each aid station was in charge of a medical officer, who had a hospital corps man for assistant and attendant. These stations and hospitals were open night and day, and during the encampment gave treatment to 8,397 patients who were not sent to hospitals. No numerical record was kept of the numbers in camp who received shelter and comfort at the stations, but it is known to have been many thousands.

The total number admitted to hospital was 744, and the following table shows the causes of admission:

Cause.	Admissions.	Cause.	Admissions.
Heat exhaustion	319	Constipation	10
Exhaustion, physical...116		Bronchitis	9
Diseases, digestive	69	Rheumatism	8
Alcoholism	59	Diseases, respiratory..	6
Diarrhoea	55	Diseases, cutaneous...	4
Diseases, circulatory... 31		Malaria	2
Diseases, nervous..... 23		Tonsillitis	1
Injuries	16	Sunstroke	1
Diseases, genito-urinary	15		
		Total	744

The mortality for the whole encampment was 9, the



AN ACCIDENT CASE IN THE OPERATING ROOM
AT THE FIRST FIELD HOSPITAL.

causes of death being given as cardiac dilatation, 2; apoplexy, 2; heart failure, 1; asthenia, 1; heat prostration, 1; exhaustion, 1; uremia, 1.

It is believed that the facilities for prompt attention and first aid contributed more than any other feature of the encampment to this remarkable showing.

The detrainin in the camp, the assistance given these old men by orderlies and boy scouts, and the use of automobiles and other means of transportation in cases requiring it, all tended to conserve their strength and prevent undue exhaustion. On every hand assistance was available. It was the aim of all connected with the camp to provide in every possible way the comfort of the old veteran and to make him feel that his interests were paramount.

The weather was intensely hot; on July 2d the temperature for several hours registered $103\frac{1}{2}^{\circ}$ F. in one of the hospital tents. Without careful thought and preparation it is believed that hundreds might have succumbed to the climatic conditions and many fatalities have resulted from sunstroke and exhaustion.

The Pennsylvania Department of Health, under the charge of Dr. Samuel G. Dixon, Commissioner of Health, made ample provisions in the town of Gettysburg for the care of the many thousands that poured into that small place during the days of the encampment. An emergency field hospital was established and various first aid stations and comfort stations provided.

The State Department of Health worked at all times in the greatest harmony with the medical department of the army. The great camp was for the veteran only and as the function of the army did not extend outside the camp it was necessary that provisions be made for the outside crowds.

The sanitation of the camp was one of no little magnitude. The nature of the soil, which is adobe, or clay, added to the problem. It was almost impervious to water and ground water was reached in almost all parts of the camp within three feet of the surface. There were 90 latrines, with a seating capacity of 3,476. Two urine troughs to each latrine were scrubbed and lined daily. The latrines were burned out daily with oil and straw, and limed liberally. There were 95 kitchen crematories for all kitchen refuse, solid and liquid, where wood was used as fuel. There were 95 kitchens. Two hundred and forty night cans cared for the refuse and urine and five large rock-pit crematories for the camp refuse. The contents of the night cans were also burned in these crematories.

There were 6,000 tents for all purposes. Those in which the veterans slept accommodate nine each.

The sanitation and police of the camp was entirely in the hands of the medical department. To do this work there were assigned: One chief sanitary inspector; 6 medical officers, assistant; 12 non-commissioned officers, hospital corps; 12 privates, first class or privates, hospital corps; 74 civilian employees and 26 wagons.

The camp was divided into sections, with crews to each section, in charge of an assistant inspector, who was responsible for the conditions of his section.

No flies bred or developed in camp, though during the latter days of the encampment considerable numbers from the barn yards of the farms which surrounded the camp were noticed.

There were no mosquitoes, as all standing water was oiled and ditches were kept open.

The camp was divided into four sections for sanitary administration. The first section, of which Major W. L. Little, Medical Corps, U. S. Army, was sanitary chief, was typical and the following personnel of enlisted men and laborers assigned to it: One sergeant, hospital corps, assistant to sanitary chief; one sergeant and three civilian laborers as a latrine squad, and two privates of the hospital corps as foremen.

Two civilian foremen, twelve civilian laborers, four escort wagons, which were used to haul night cans to rock pit crematories, camp rubbish from streets and ashes from kitchen incinerators. Each wagon had as a crew three civilian laborers, one foreman and one driver. This personnel and sanitary equipment reported to the sanitary chief at 5 a. m. daily.

The Latrine Squad. The duties of this squad consisted in general police of latrine sheds and surrounding grounds. It first put lime in latrine pits, then a half gallon of crude oil, a layer of straw and another half gallon of crude oil on top of the straw. The oil was sprinkled into the pit through a large perforated dipper. The latrine pit was then burned out and the seats replaced as soon as the fire was sufficiently low. By this method the fecal mass was partially burned, flies and fly larvae were destroyed and the fly-proof box seats prevented the free ingress of additional flies. The odor from the latrines was negligible or entirely absent. In the first section the latrine accommodation was for 840 at one sitting and served about 15,000 veterans and civilians without overfilling the pits. The latrine squad usually finished its work by 11 a. m. An additional squad of one sergeant and two laborers sprayed the seats of all latrines daily with a disinfecting and deodorizing solution.

The Night Cans. In each company street, galvanized iron cans with covers were placed at regular intervals as urine cans to be used at night. Two escort wagons with a foreman and three laborers emptied these wagons at the rock pit crematory early in the morning. The cans were then burned out and replaced in the company streets. When this work was completed these wagons and crews attended to policing in and around all tents, hauling the camp rubbish to the rock pit crematory for incineration. One wagon with crew was utilized to haul empty vegetable cans and ashes from the kitchen incinerators. One kitchen incinerator served two kitchens and was utilized to burn the liquid and solid garbage. All civilian laborers were released at 1 p. m. and the sanitary chiefs with the enlisted personnel made inspections in the afternoon and corrected conditions found.

All matters pertaining directly to sanitation were under the immediate control of Major Paul C. Hutton, Medical Corps, U. S. Army.



BOY SCOUTS FROM FREDERICK, MD., ON DUTY AT THE FIRST FIELD HOSPITAL.

The following is the medical and hospital personnel of the encampment:

	Lt. Colonel	Majors	Captains	1st Lieut. M.C.	1st Lieut. M.R.C.	Total Commissioned	Non-Commissioned Officers	Act. Cooks, Pvt. 1 st Class, & Privates	Total Enlisted	Aggregate	Bed Capacity of Hospitals	Ambulances (Mule)	Ambulances (Auto)
Chief Surgeon's Office and Sanitary Inspector's detail	1	3	3		2	9	14	13	27	36			
Provisional Field Hospital		1	2	2	3	8	9	49	58	66	412		
Field Hospital No. 1		1	2	2	2	7	9	49	58	65	412		
Provisional Ambulance Co.		1	1			2	5	45	50	52		16	2
Regimental Hospital No. 1.		1	1		1	3	3	10	13	16	100		
Regimental Hospital No. 2.		1	1		1	3	3	10	13	16	100		
Regimental Hospital No. 3.		1	1		2	3	3	10	13	16	100		
5th Infantry Infirmary.....				1		1	1	4	5	6	6		
15th Cavalry Infirmary.....													
(3d F.A. included)					1	1	1	1	2	3	6		
First Aid Stations (11).					12	12			12				
Totals	1	9	11	4	24	49	48	191	239	288	1136	16	2

This statistical exhibit will show the work done by the different hospitals and stations:

	Cases admitted to hospitals	Cases treated but not admitted to hospitals	Sent to hospitals from First Aid Stations, etc.	Total Cases	Discharged from hospitals	Transferred to Hospital Train State of Penna.	Dead
Provisional Field Hospital..	353	640	993	1297	340		
Field Hospital No. 1.....	222	1075	1297	211			
Regimental Hospital No. 1..	73	293	366	72			
Regimental Hospital No. 2..	76	781	857	76			
Regimental Hospital No. 3..	20	1042	1062	20			
5th Infantry Infirmary....		564	18	564			
First Aid Stations (11)...		4002	420	4002			
Red Cross Stations (14)...		845	71	845			
Totals	744	9242	509	9986	719	16	9

The Red Cross. The American Red Cross Society, acting as an auxiliary, operated 14 rest and first aid stations on the battlefield park roads, outside the camp proper, and during the encampment treated 845 cases, of which 71 were transferred to hospitals, and gave shelter, rest and comfort to 10,695 others. Major Robert U. Patterson, Medical Corps, U. S. Army, was in charge of the Red Cross work. The 26 Red Cross nurses assigned to duty with the camp field hospitals did excellent work. Their services will long be remembered by the ward surgeons.

Major Patterson, who is in charge of the work of the Red Cross at the Washington headquarters, had 207

assistants, as follows: Seventy-one nurses (female), 10 surgeons, 72 boy scouts, 33 miners, 10 chauffeurs, with cars, and 11 cooks, waiters and laborers.

The First Aid Stations.—Col. Bradley is of the opinion that the efficient work done by the surgeons of the Medical Reserve Corps at the first aid stations kept the death rate down materially. These officers, most of whom are prominent specialists in civil life, took up the work assigned them with admirable determination and by constant attention to duty rendered invaluable service to the veterans.

A station, situated at the Pennsylvania headquarters, designated as Station 1, was the busiest of the encampment. It was commanded by First Lieut. David A. Kraker, M. R. C., late a major in the medical department of the New Jersey National Guard and for some years an assistant surgeon in the United States Navy.

Lieutenant Kraker, at our suggestion, has written a description of an aid station and the work done therein, based on his own experience.

In describing a station he quotes from F. S. R. Par. 303. "The first aid stations are established by the regimental surgeons as near the firing line as possible." This plan was followed by the chief surgeon, and the stations were located at such points as were easily accessible to the veterans and convenient to the congested points, so that the sick could be directed or carried to the stations with the least loss of time.

The personnel of an aid station consisted of a first lieutenant M. R. C. in command of one or more hospital corps men (enlisted) and a number of Boy Scouts. The enlisted men acted as assistants to the medical officer and the scouts as orderlies. The equipment consisted of an officer's wall tent and two large tropical tent flies; the tent was used as a dispensary and as quarters for the officer and the flies served as rest stations. The rest stations were equipped with 10 cots each and provided accommodation for twenty patients receiving first aid or awaiting transfer to the field hospital. The aid stations were opened on June 29 and Aid Station No. 1 was located at the entrance to the camp from the town. There the Pennsylvania veterans had to assemble for assignment to quarters. As the day was extremely hot and the number of waiting veterans was greater than the authorities had anticipated, they were not prepared to provide sufficient shelter and the exposure to the sun and heat gave Lieut. Kraker and his men plenty to do. During the forenoon of June 29 over 100 patients were treated, of whom 35 were transferred to field hospital No. 1 for further attention.

The method of procedure is interesting. Patients



RED CROSS NURSES AT FIRST FIELD HOSPITAL.



FIRST FIELD HOSPITAL, CONVALESCENT VETERANS IN PAJAMAS. TO THEM A STRANGE ATTIRE.

either walked to the station or were carried on litters. They were placed under the shelters and first aid administered. Then the history was taken and the medical officer made an examination. If there was any question as to the seriousness of the complaint, the patient was transferred to the field hospital by ambulance.

Ambulance patients were transported either sitting or on the litter. A maximum of four could be carried by litter and eight sitting, and the ambulances were kept busy all the time during the encampment, each company averaging over 250 calls per day. This closely simulated battle conditions. The majority of the patients treated at the aid stations were sent to their quarters with orders to return at stated intervals. The Hospital Corps men made calls at the different tents in the district covered by the station and reported to the officer in command. By this method much serious illness was prevented. The total work done at Lieut. Kraker's station from June 29 to July 5 was:

Cases recorded at first visit, 385; cases transferred to field hospital, 176; total visits and treatments, 750.

It was this efficient work on the part of the officers in charge of the aid stations that kept the mortality below .06 per thousand.

Medical Officers. The list of medical officers and their stations follow:

NAME.	DUTY.
Lieut. Colonel A. E. Bradley, M. C.	Chief Surgeon
Maj. L. T. Hess, M. C.	C. O. Prov. Field Hosp.
Maj. C. C. Collins, M. C.	Executive & Property Off.
Maj. M. A. W. Shockley, M. C.	C. O. Prov. Amb. Co.
Maj. S. H. Wadhams, M. C.	C. O. Regt. Hosp. No. 3
Maj. A. W. Morse, M. C.	C. O. Regt. Hosp. No. 1
Maj. P. C. Hutton, M. C.	Sanit. Inspt.
Maj. G. McD. Van Poole, M. C.	Asst. Sanit. Inspt.
Maj. W. W. Reno, M. C.	C. O. Field Hosp. No. 1
Maj. P. L. Boyer, M. C.	C. O. Regt. Hosp. No. 2
Maj. W. L. Little, M. C.	Asst. Sanit. Inspt.
Capt. W. H. Moncrief, M. C.	Adj. Prov. Field Hosp.
Capt. W. M. Smart, M. C.	Asst. Sanit. Inspt.
Capt. H. S. Purnell, M. C.	Adj. Field Hosp. No. 1
Capt. J. A. Clark, M. C.	Surgeon, 5th Inf.
Capt. P. W. Huntington, M. C.	Surg. Prov. Field Hosp.
Capt. J. R. Bosley, M. C.	Adj. Prov. Amb. Co.
Capt. A. N. Tasker, M. C.	Surg. Field Hosp. No. 1
Capt. G. L. McKinney, M. C.	Asst. Sanit. Inspt.
Capt. C. E. Doerr, M. C.	Surg. Regt. Hosp. No. 2
Capt. R. H. Goldthwaite, M. C.	Surg. Regt. Hosp. No. 1
1st Lieut. R. W. Mills, M. C.	Surg. Prov. Field Hosp.
1st Lieut. H. L. Hull, M. C.	Surg. Field Hosp.
1st Lieut. J. E. Baylis, M. C.	Surg. Field Hosp. No. 1
1st Lieut. A. W. Schoenleber, M. C.	Surg. Field Hosp. No. 1
1st Lieut. W. W. Vaughn, M. R. C.	Surg. 15th Cav.
1st Lieut. H. S. Baketel, M. R. C.	Field Hosp. No. 1
1st Lieut. G. C. Beach, Jr., M. R. C.	Aid Stat. No. 2
1st Lieut. W. M. Brickner, M. R. C.	Regt. Hosp. No. 3
1st Lieut. H. C. Coe, M. R. C.	Prov. Field Hosp.

1st Lieut. W. S. Cornell, M. R. C.	Aid Stat. No. 5
1st Lieut. G. S. Crampton, M. R. C.	Prov. Field Hosp.
1st Lieut. T. Darlington, M. R. C.	Asst. Sanit. Inspt.
1st Lieut. M. M. Eckert, M. R. C.	Aid Stat. No. 8
1st Lieut. W. E. Fitch, M. R. C.	Aid Stat. No. 9
1st Lieut. H. Fox, M. R. C.	Prov. Field Hosp.
1st Lieut. H. M. Hays, M. R. C.	Regt. Hosp. No. 2
1st Lieut. H. Hume, M. R. C.	Aid Stat. No. 10
1st Lieut. A. R. Jarrett, M. R. C.	Regt. Hosp. No. 3
1st Lieut. G. C. Kieffer, M. R. C.	Aid Stat. No. 4
1st Lieut. J. V. Klauder, M. R. C.	Aid Stat. No. 11
1st Lieut. D. A. Kraker, M. R. C.	Aid Stat. No. 1
1st Lieut. W. E. Lee, M. R. C.	Aid Stat. No. 7
1st Lieut. W. S. Magill, M. R. C.	Aid Stat. No. 3
1st Lieut. C. B. J. Mittelstaedt, M. R. C.	Aid Stat. No. 6
1st Lieut. R. Slee, M. R. C.	Asst. Sanit. Inspt.
1st Lieut. M. M. Stark, M. R. C.	Regt. Hosp. No. 1
1st Lieut. S. M. Strong, M. R. C.	Aid Stat. No. 1
1st Lieut. R. W. Wilcox, M. R. C.	Field Hosp. No. 1

The Medical Officers' Efficiency.—The veterans were unanimous in their praise of the attentions shown them. Everything possible for their comfort was anticipated by the medical department of the army and the low mortality is undoubtedly due to the assiduous ministrations of the army surgeons.

Little has been said about the laying out of the camp as that subject has been fully covered by the daily press. The camp stood on the slopes of Cemetery and Seminary Ridges and the valley between. The latrines were located for the most part at the lowest part at the foot of the company streets. Water was piped to every part of the camp. The pipes were four feet under ground and in places ran through iced refrigerators so that cool drinking water was obtainable at practically all times.

Observers who critically examined the camp are of the opinion that the Gettysburg encampment amply demonstrated what the medical officers of the army can do when large bodies of troops are concentrated. If the death rate among 55,000 men over 70 years of age not amenable to discipline and under the most trying climatic conditions can be kept down to a negligible quantity, it is recognized that even better conditions can be carried out among young, disciplined troops.

At the expense of being considered immodest, the writer quotes a prominent army medical officer, who, in a resume of the work performed by the officers of the Medical Reserve Corps said: "On the whole, the reserve officers conducted themselves admirably and they certainly won their spurs. A few failed to recognize military amenities, but as a body they fitted into the military organization with becoming grace. They demonstrated not only professional skill of high merit, but they assumed the technical duties of the military officer and carried them out most satisfactorily."

If medical reserve officers are given an opportunity for some active service each year they will prove an invaluable aid to the medical officers of the regular establishment in times of emergency.

A subsequent article will deal with the work of the field hospital of the army as exemplified at Gettysburg.

The itching sensation of eczema, which patients attempt to relieve by scratching with the finger-nails, may be the cause of spreading the eruption from the primary eruptive places to other parts of the skin. Many writers maintain that the spreading of eczema is due to the scratching.

It is a good presumption that many of the pains in the nose, radiating to the eye, in which no internal pressure is detected and there is no suppuration of the sinuses, are rheumatic.

Current Orientation

UROLOGICAL CONDITIONS.

The importance of the diseases of the genito-urinary system is very great. The work of the surgeon who devotes his attention to these conditions is being deemed quite as necessary as that of any other surgical specialist. The *Journal A. M. A.* has devoted considerable space of late to genito-urinary disorders, and the matter has been so admirably handled that we are giving excerpts of some of the more prominent articles.

Pyelotomy.

D. M. Eisendrath of Chicago (April 12) says that since the x-ray has been in use a new era has been begun in kidney surgery for calculus. For calculi at the uteropelvic junction as shown by the x-ray and without other complications, pyelotomy is the ideal method, and he gives in detail the technic as performed by himself. Nephrotomy is preferable in cases in which there is a large branched calculus filling the renal pelvis or in which there are many small calculi lying scattered throughout the kidney and inclosed cavities. It is also to be chosen in infected cases in which there is more or less destruction of the parenchyma, and here the question comes in as to whether nephrotomy or nephrectomy is more desirable. One cannot urge too strongly the need of ureteral catheterization before operating to determine the functional capacity of each kidney. In infected cases in which nephrectomy is not needed, drainage is better through a nephrotomy wound than through that of pyelotomy. Nephrotomy is the safer operation when the renal pedicle is short or extensive perinephritic changes render the delivery of the organ into the wound very difficult. The condition of the parenchyma can be determined much better by the nephrotomy incision. The disadvantages of nephrotomy are the greater danger of hemorrhage, which may be serious, and the danger of overlooking calculi, which is greater with nephrotomy than with pyelotomy.

The danger of necrosis after nephrotomy has doubtless been exaggerated, but it is not altogether negligible in selecting the method of operation. The advantages of pyelotomy are that it is the simplest and safest method of removing calculi at the uteropelvic junction, or small or moderately large calculi, either free in the ampullary type of pelvis or in a primary calix of a bifid or trifid type of pelvis. It is also becoming the method of choice for small calculi lodged in the calices of the ampullary type. Some operators combine transverse or vertical incisions into the parenchyma with pyelotomy for the removal of larger calculi. It is the best method for calculi in one or both pelves of a horseshoe kidney, as well as in bilateral cases, especially in those complicated by anuria. Hemorrhage is less likely to occur, and there is less danger of overlooking a calculus. It can be performed much more rapidly, and the period of convalescence is much shorter than with nephrotomy. Its drawbacks are that it is contra-indicated when the pedicle is short, when the kidney is fixed by adhesions or when extensive infection is present. There is a slight danger of a fistula after operation, especially if one overlooks any obstruction in the distal ureter. A ureteral

catheter should always be passed down into the bladder before suturing a pyelotomy incision. The danger of bleeding from the peripelvic vessels, though slight, should always be borne in mind. In conclusion, Eisendrath says that he believes that pyelotomy is destined to become an active competitor with nephrotomy as the operation of choice in the majority of cases.

Nephropexy.

A. Werelius of Chicago (March 1) gives the principal data in regard to the etiology and the pathologic anatomy of nephroptosis, its diagnosis and treatment and the methods of fixation which have been devised and used. "The basket-handle operation" employed by him is given as follows: "After the kidney has been exposed and delivered through the wound the capsule is split and deflected. Then the procedure is as follows: Step 1—Cut with scissors, as indicated by dotted line, making two flaps. Step 2—Push kidney down into the wound; draw the artificial suspensory ligaments through the muscles and fascia on either side of the wound. The remaining border of the deflected capsule may be sewed to the transverse fascia. Step 3—Unite muscular layer over the kidney. The kidney is then drawn up against the denuded muscles by the artificial capsular ligaments, the ends of which are tied in a knot, and transfixed by a silk or catgut suture. The united flaps thus form a "basket-handle," from which the kidney (basket) is suspended. For some time I have placed the patients in a slanting position for all my kidney work." Brief notes are given of the anatomic results of twenty-seven cases thus operated on, which were all uniformly good. The patients were all females and, except in one case, the right kidney was the one prolapsed. Nineteen patients had been pregnant. In six patients the appendix was removed through the lumbar incision. In one case there was complicating thrombophlebitis and in two aggravated postoperative neurosis.

Malignant Renal Tumors.

W. F. Braasch of Rochester, Minn. (January 25), reports the experience of the St. Mary's Hospital clinic in operating on eighty-three malignant tumors of the kidney. The most important symptom in these cases is probably hematuria, which was observed in 64 per cent., as a primary symptom in 36 per cent. and as the only symptom in 10 per cent. In forty-one cases, or 77 per cent., it was noted more than a year before the patients presented themselves for operation and gross blood was found in the urine at the time of examination in thirty-three, or 40 per cent., of the cases. As observed by the patient himself, the symptom may be of doubtful value and possibly due to some passing condition, or it may have been neglected and forgotten. The presence of tumor may be of uncertain diagnostic value, tumors of surrounding organs may simulate kidney tumors and vice versa, and palpation may be uncertain on account of the position of the kidney, or the tumor or in fat individuals. Large kidneys may simulate tumor. Pain is due to pressure on nerves or to increased kidney tension, and may be misleading, simulating gall-bladder disease or lumbago. Pus may occur in the urine, but it is usually due to secondary infection, but it may be so marked as to suggest pyonephrosis. Evidence of circulatory

disturbance is commonly found with the so-called hypernephroma or mesothelioma. It is so frequent as to indicate a vasomotor dilating effect due to the toxins absorbed from the tumor. Dilated superficial veins of the face and recently appearing varicocele are suggestive.

Braasch goes at length into the different diagnoses. The conditions most easily confused are (1) "essential" and nephritic hematuria; (2) retroperitoneal tumor; (3) bilateral cystic kidney; (4) closed pyonephrosis. Other aids to diagnosis are a dry cough of recent origin, the cystoscopic inspection, urethral catheterization, estimation of renal function and pyelography. The latter should not be employed unless other means fail. Among the eighty-three patients operated on for malignant tumor, the surrounding tissues were so involved as to render nephrectomy impossible in twenty-two, and the clinical records also show twenty-one other patients who were considered inoperable, though the diagnosis was considered reasonably certain. Of the sixty-one who underwent nephrectomy, seven died in the hospital; of fifty-one remaining patients that could be traced, seventeen were alive more than one year, twelve after three years, four after five or more years, and one after eight years. Of the twenty-seven reported dead, nine died within a year after operation, two lived one year, four lived two years, and four lived three, four and five years, respectively, after operation. These results compare favorably with other malignant abdominal growths. In conclusion Braasch says: "I wish to emphasize the importance of immediately ascertaining the source of every hematuria. Of the fifty-three patients operated on for malignant renal tumor who had a definite history of hematuria, but eighteen, or 34 per cent., had been advised to be examined for its source.

Hematuria, particularly when so well marked as to color the urine, is always to be considered a sign of some grave condition in the urinary tract. In fact, it would be conservative to regard every case of hematuria as the result of a malignant process until it can be definitely proved to be otherwise. Renal tumor may lie dormant or grow insidiously over a period of years, and by the time that hematuria, tumor or pain calls attention to its existence it should receive immediate surgical attention."

Edema and Nephritis.

A. R. Moore of Berkeley, Cal. (February 1), presents a paper in reply to the recent article of M. H. Fischer (*A. M. A.*, Oct. 19, 1912) in support of the colloid-chemical theory of edema and nephritis, which Moore considers invalid. The latter's conclusions are summed up in the following: 1. Fischer's conclusions as to edema are based on experiments with dead muscle, and it has been shown that dead muscle does not behave like living muscle. 2. Fischer assumes that when muscles are placed in distilled water they behave normally. This I have proved to be contrary to fact. 3. Fischer assumes the presence of acid in artificial edemas of frogs' legs, but offers no proof for his assumption, and I have shown that a muscle in isotonic Ringer's solution may contain demonstrable quantities of acid without swelling. 4. It has been proved by Volhard that the artificial edema is brought about by ligating the lymphatic system, and that it is not caused by

ligation of the arteries, as Fischer contends. 5. It has been proved that there is no demonstrable acid in the kidneys of rabbits having albuminuria, and also that relatively large quantities of acid added to the kidneys do not cause the proteins to go into solution. 6. In the hands of unbiased physicians the use of Fischer's treatment of edema and nephritis gives negative results or worse."

Renal Calculus.

A. P. Ohlmacher of Detroit (April 19) discusses the connection between bacteriuria and nephrolithiasis and the treatment of the latter by autogenous vaccination. The only previous literature he finds is an early publication by Wright on vaccine therapy, which he quotes. Ohlmacher publishes eight cases, five of them cases in which there were one or more attacks of renal colic, but in which the patient applied for treatment of painful urination. All but two of these patients were symptomatically relieved by autogenous vaccine treatment. The organisms were found to be the staphylococcus and colon bacillus. While the cases were not numerous enough to authorize conclusive deductions, he has been favorably impressed with the results of the treatment in these cases. In several the offending bacterium was still found in the urine after relief of symptoms, hence he thinks a conservative attitude should be maintained as regards the possibility of preventing calculus formation by bacterial vaccine treatment.

In all cases the bacteriologic analysis was immediately begun on the freshly evacuated urine, sterilized receptacles being employed. Agar plate-cultures were prepared. "Vaccines were prepared either from the first generation of pure cultures when laid on agar-slants, or from the second generation from plates, transplants being taken from several colonies to secure the possible 'varieties.' The bacterial emulsion was killed by beating for half an hour at 60 C. (140 F.), diluted with sterile water, and preserved by adding 0.4 per cent. trikresol. The first dose of vaccine numerically approximated by the differential density method, and subsequently standardized by the response to inoculation, both as regards the local reaction and the symptomatic effect. When treatment was prolonged, fresh autogenous vaccines were prepared as occasion required. Ohlmacher thinks these experiences emphasize the importance of routine bacteriologic analysis in all cases of renal calculus and the associated pyuria.

Bacterial therapy with autogenous vaccines should be instituted in non-operative cases of non-calculus cases of pyuria and bacteriuria for the relief of bladder irritability and impaired general health and in cases in which there has been operation and these symptoms persist.

Urinary Lithiasis.

H. L. Kretschmer of Chicago (January 11) reports a case which is of interest on account of its long duration without symptoms, its bilateral character, the great destruction of tissue and from its illustrating the value of the x-ray in diagnosis. The patient was a Greek, who at the age of 17 had suffered pain in the region of the right kidney after lifting. Four years later, during his army service, he suffered from what was diagnosed as kidney disease, but which only disabled him for two weeks. In February,

1911, he had a painless hematuria, which was repeated in April. The date when seen by the reporting physician is not given, but he had had only pain in the back for about eight hours, with tenderness over the right kidney. The catheters were easily passed into the kidney pelvis, and the skiagraph showed a small shadow in the left kidney, and a week later another on the right side, with the catheter passing alongside of it. The diagnosis of stone in the right ureter, and also in the left side, was verified by operation. The left kidney showed only a mere shell with very little secreting tissue, and was consequently removed. The article is illustrated.

Lumbar Muscle Spasm in Nephritis.

The importance of the visceral reflexes is insisted on by F. M. Pottenger of Monrovia, Cal. (March 29). He had previously pointed out the spasm of the lumbar muscles in tuberculous nephritis, but says it is not limited to that special form. He has also noted that the same motor visceral reflex is found in the presence of inflammations affecting the lungs and pleura, and that it can be detected in the muscles of the neck and chest. The principle of these reflexes is simple. It is segmental in character, not following an entire nerve, but only certain fibers of the nerve, and may appear as a spasm of one muscle or of a group of muscles, or even of a portion of a muscle. Only those nerve fibers are involved which originate from the cells affected by the stimulus coming from the cord through the fibers of the sympathetic which supply the inflamed portion of the viscus. It only remains for us to work out the area carefully and we will sometime undoubtedly be able to show definite areas for motor, sensory or trophic disturbances which we shall be able to assign to each organ or part of an organ. In the presence of acute inflammation the reflex shows as a muscular spasm, and when the inflammation becomes chronic, degeneration and trophic disturbances appear.

The kidney reflex described by Pottenger is, he says, not very difficult to elicit. "It is found by placing the patient on a comfortable stool or chair so that his feet are flat on the floor. He is then instructed to sit erect, but relaxed, so that the lumbar muscles are not put on a stretch. These muscles are now examined by light palpation. Any difference in tension should be observed. If one kidney is the seat of an inflammatory process, the muscles on that side will be firmer than normal. If both kidneys are inflamed the lumbar muscles on both sides will be firmer than normal to the touch. It is often plainly visible that the muscles on the affected side are larger and stand out more prominently than the corresponding muscles on the other side. The most important thing to remember in looking for the spasm here, the same as in examining the muscles of the abdomen, chest or neck, is to have the muscles relaxed. The muscles which are being examined, as well as those with which they are being compared, must be relieved of all tension, otherwise errors will creep in." The importance of these reflexes, he says, is self-evident. In kidney tuberculosis, when operation is considered, they are of special value. Catheterization of ureters and failure to find tubercle bacilli in the catheterized urine does not exclude tuberculosis of the kidney,

as a tuberculous kidney does not always throw off bacilli.

The presence or absence of spasm of the lumbar muscles is therefore of value, and, he says, "With the experience that I have had with tuberculosis of the kidney since announcing this reflex, I am sure that no kidney should be removed for tuberculosis, except as a life-saving measure, if the lumbar muscles on the other side are the seat of spasm."

Ulcer of the Bladder.

Leo Buerger of New York (February 8) says that while solitary ulcer of the bladder is considered very rare, two cases have recently come under his observation, which he reports. This seemed to him to indicate that the condition may be frequently overlooked. Both cases had been examined by the cystoscope, but the cause of the most striking symptom, hematuria, had not been discovered. From the location of the ulcer, on the posterior vesical wall, the region often poorly shown in routine inspection, the ulcer is liable to be missed. He specially refers to the work of Le Fur and Siredey as the most comprehensive contribution on the subject, and summarizes the conclusions that may be deduced from the rather meager observations as follows: "1. A careful search should be made in all cases of vesical hematuria for the presence of a simple solitary ulcer. 2. Bleeding ulcers may be overlooked if we fail to bring every portion of the superior and posterior walls of the bladder in view. 3. The most striking symptom in the cases under observation was hematuria, persisting for more than two years in one of the patients. 4. In the treatment of this condition, as well as in the treatment of tuberculous ulcer after nephrectomy, the fulguration method should be tried, and if this fails mercurial injections should be given in cases of simple ulcer. 5. Future studies should be directed toward the investigation of the etiology of this affection, both by careful consideration of the histories of the cases and by thorough bacteriologic examinations."

The Prostate Gland.

O. S. Lowsley of San Francisco (January 11), gives a description of the anatomy of the human prostate, at birth, based on the serial study of cross-sections of the prostate of the human baby, which are cut and mounted in the usual way, being stained on the slides with hematoxylin and eosin. A reconstruction in wax was also made showing the various groups of tubules, the prostatic urethra, the ejaculatory ducts and the utricle, enlarged twenty times. From a study of the embryology he finds that the organ begins to develop at the twelfth week of fetal life, originating from five groups of tubules which begin as solid epithelial outgrowths, which later develop lumina. The seminal vesicles begin to develop at the thirteenth week as lateral evaginations from the vasa deferentia and the utricle is seen about the same time, as a small tube between the vasa. There is no evidence of the ejaculatory or prostatic ducts opening into the utricle in any of the prostates studied. In all specimens older than twenty-two weeks the utricle appears only in the verumontanum, which is formed by the growing in and further development of the ejaculatory ducts and the utricle.

(To be concluded.)

The Physician's Library

Diet in Health and Disease. By Julius Friedenwald, M. D., Professor of Gastro-Enterology, and John Ruhrah, M. D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition, thoroughly revised and enlarged. Octavo of 857 pages. Cloth, \$4.00; Half Morocco, \$5.50 net. Philadelphia and London: W. B. Saunders Company.

This excellent work appears in its fourth edition, with many chapters new or entirely revamped, in view of the marked advance in our knowledge of diet since the last edition in 1911. Metabolism has been presented in new form, and a section on the mechanism of digestion is given. Very many new diet tables and recipes for special food in different diseases are added. Infant feeding has been brought up to the latest modern thought. The authors have undertaken to show the physician how he can prescribe diet as he does drugs, and by their efforts it is easy to determine what each individual patient will need under the different conditions of disease.

Not the least interesting features are the chapters on the dietaries of various institutions and the rapid reference diet lists.

The book is one which will appeal to every practitioner of general medicine.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II., Number III. (June, 1913). Octavo of 185 pages, 62 illustrations. Published bi-monthly. Price per year: Paper, \$8.00; Cloth, \$12.00. Philadelphia and London: W. B. Saunders Company, 1913.

Among the many interesting subjects treated in this number are obturation ileus, cystic adenoma of the thyroid, ankylosis of the jaw, fractures of neck of the femur, scaphoid and semilunar bones, infectious granuloma of the caput coli, anthroplasty of the hip, Pott's disease and procidentia uteri.

Surgery of the Eye. By Ervin Török, M. D., Surgeon to the New York Ophthalmic and Aural Institute, and Gerald H. Grout, M. D., Instructor in the Eye Department, Vanderbilt Clinic, Consulting Ophthalmologist to the Bellevue Hospital, First Division. Octavo, 507 pages, with 509 original illustrations, 101 in colors and 2 colored plates. Cloth, \$4.50 net. Philadelphia and New York: Lea & Febiger, 1913.

In the matter of ophthalmological literature this book will stand out as one of pronounced value. All unnecessary explanation and controversial material has been omitted, and plain, practical facts are given eminent right of way. Before describing each group of operations the authors have discussed the disease for the relief of which they are intended, and have given clear indications for the selection of the proper procedure in any given case. A detailed description of the steps of each operation then follows, with a list of all the instruments required. After this the complications that may occur at the time of operation and later are taken up, together with the post-operative care of the patient.

While we cannot advocate the advisability of the performance of operations on the eye by the general practitioner, in case of emergency the careful following of operative technic, as laid down by this book,

would doubtless enable the physician to make a good showing.

The book is splendidly printed, and its fine array of illustrations add much to the general excellence of the work.

Progressive Medicine. Edited by H. A. Hare, M. D., and L. F. Appleman, M. D., of Jefferson Medical College. Paper, 450 pages. Price \$6 per annum. Vol. XV, No. 2. Philadelphia and New York: Lea & Febiger, 1913.

This number is of unusual excellence. It includes Hernia by W. B. Coley; Surgery of the Abdomen, by J. C. A. Gerster; Gynecology, by J. G. Clark; Diseases of the Blood, etc., by Alfred Stengel, and Ophthalmology, by Edward Jackson. Each subject is so exhaustively handled that one is enabled to keep in close touch with the latest in medicine by reading these long and comprehensive reviews.

Food and Flavor. By Henry T. Finck. Cloth. 594 pages. Illustrated. New York: The Century Co. 1913.

This is a gastronomic guide to health and good living, intended for those who live to eat, or at least who have trained their palates to recognize food, not from its nutritive value, but from its appetizing taste. It is a book that should delight epicures and lovers of good food. To the man holding to the stern New England code of living its honeyed words will contain no appeal, but to the gastronomic artist the book offers great cuisinal attractions. It reveals myriads of food delicacies and the story is told in so attractive a manner that we dare not read the book carefully, lest we be induced to desert our simple fare for the savory viands so temptingly portrayed in its pages.

Traite du Sang. Published under the direction of Doctors A. Gilbert, of Hotel Dieu, and M. Weinberg, of the Pasteur Institute. Paper. 700 pages. Vol. I. Paris: J. B. Bailliere et Fils, 19 rue Haute-Feuille, 1913.

Through the impulse of modern research it has been gradually acknowledged that the blood participates in the different morbid processes that enter into disease. The blood has not yet given up its last secret and holds still some surprises in reserve, but here and there it has furnished us with such useful information that its study can no longer be neglected. This book is an exposition of knowledge of the blood. The editors have taken up everything of a practical nature and the scientists have contributed original hematological researches, giving the indications relative to the diagnosis, prognosis and treatment. The first part of this volume is devoted to the study of physico-chemistry of the blood and the elements which figure in the normal and the pathological conditions.

The second part is given over to the abnormal elements of the blood taken from the organisms or from outside as microbes and parasites.

The second volume will consider the serum, plasma, sero-diagnosis, blood research.

The Elements of Bacteriological Technique. By J. W. H. Eyre, M. D., Director of the Bacteriological Department of Guy's Hospital, London. Second Edition, rewritten and enlarged. Cloth. Octavo of 518 pages, with 219 illustrations. Price,

(Continued on p. 20.)

Intestinal Antisepsis

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The class of remedies possessing the power to arrest the septic process, correct atonic relaxation and allay the inflammation is well represented in

BISMACOL

Each fluid ounce of which represents:

Bismuth Oxide Hydrated	12 grains
Magnesium Salicylate	1 grain
Geranium Maculatum	32 grains
Pancreatin	4 "
Potassium Guaiacol Sulphonate	4 "
Sodium Sulphophenate	1 grain
Chloroform	2 minims
Elm in Mucilage	10 grains

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THE WM. S. MERRELL CHEMICAL COMPANY
CINCINNATI

\$3.00 net. Philadelphia and London: W. B. Saunders Company, 1913.

The purpose of this book, to supplement the usually scanty details of technique, to instruct the student how to adapt his apparatus for every-day work and to carry out the various minutiae of bacteria analyses, is thoroughly carried out.

The subject is well and methodically presented, and the student will find the book an invaluable aid. It is written by one of England's leading bacteriologists, and while some of the methods differ from our own, the subject is so admirably handled that the interested student will not be satisfied until he goes over Eyre's presentation.

Epidemic Cerebrospinal Meningitis. By Abraham Sophian, M. D., formerly with the New York Research Laboratory. Cloth, 272 pages. Twenty-three illustrations. Price, \$3.00 net. St. Louis: C. V. Mosby Company, 1913.

This is the only English monograph on this important subject, and it is a valuable little book. It takes up the etiology, symptomatology, laboratory diagnosis, complications and treatment, and devotes a chapter to the blood pressure in meningitis. In the latter connection the author thinks it unsafe to withdraw more spinal fluid after the blood pressure has dropped 10 mm., especially as when the anti-meningococcic serum is injected the blood pressure continues to fall. Sophian finds that with serum treatment most acute cases which respond to treatment are convalescent in five or six days. Before the use of serum the mortality ranged from 70 to 90 per cent. The New York epidemic in 1904-05 showed a death rate of 90 per cent. in 2,000 cases. Under serum treatment in the Texas epidemic of 1912 the mortality was only 25 per cent.

The Narcotic Drug Diseases and Allied Ailments—Pathology, Pathogenesis and Treatment. By George E. Pettey, M. D. Cloth. 516 pages. Illustrated. Price, \$5.00 net. Philadelphia: The F. A. Davis Company, 1913.

This is without doubt the most comprehensive book on the subject yet produced. It is written by a man widely known among medical journal readers as a prolific writer on narcotism. It expresses his views, some of which are at variance with other writers, but which are doubtless sound, in view of his great success. It is a most helpful work, and the author is abundantly confident that his ideas, if fully carried out as to technic, will result in the restoration to health of the unfortunates who suffer from various forms of addiction. The chapter on congenital morphinism is of great interest; it shows that by the aid of hyoscine the mother can be cured and the life of the child saved. Pettey makes a strong plea for a more just judgment of drug takers, showing how many of them contract the habit innocently. The chapters on alcoholism are very enlightening. The book is fascinating and one which will doubtless go far toward giving drug takers better and more scientific attention.

Bovine Tuberculosis and Its Control. By Veranua Alva Moore, B.S., M.D., V.M.D. Cloth. 134 pages. Thirty full-page illustrations. Ithaca, N. Y. Carpenter & Company, 1913.

The possibility of the transmission of bovine tuberculosis to man by means of milk is so firmly established that the great necessity in looking toward

the control of tuberculosis is the eradication of the disease in cattle. Moore advocates approaching this matter guardedly, first killing such animals as can be pronounced diseased by physical examination. He would defer the tuberculin test to the desire of the owner, whom he would educate along economic and hygienic lines.

Moore shows that of 23,869 cattle reacting to the test with tuberculin, 23,585 were shown to be tubercular or post-mortem. We regret to note, however, that there "is no method that can be recommended to the cattle owner for successfully vaccinating or immunizing his animals against tuberculosis."

The book goes into the history of bovine tuberculosis thoroughly, shows the cause and symptoms of the disease, the means of dissemination, methods of immunization and the control of the disease.

Genito-Urinary Diagnosis and Therapy. By Dr. Ernst Portner of Berlin. Translated by Bransford Lewis, M. D., of St. Louis University. Cloth. 220 pages. Illustrated. Price \$2.50 net. St. Louis: C. V. Mosby Co., 1913.

This is a distinctive book on therapy, the author presuming that etiology, symptomatology and diagnosis are familiar to the reader. It is, in short, a brief resumé of the latest methods of handling every urological condition. It serves its purpose well, although one might wish some of the important subjects had been handled more in detail. The description of the complement fixation test is complete. Everything is of a most practical nature and the book is one of value.

The Modern Treatment of Nervous and Mental Diseases. By eminent American and British authors. Edited by William A. White, M. D., Superintendent of the Government Hospital for the Insane, Washington, D. C.; and Smith Ely Jelliffe, A. M., M. D., Ph. D., Adjunct Professor of Diseases of the Mind and Nervous System in the New York Post Graduate Medical School and Hospital. Two octavo volumes, containing about 900 pages each, illustrated. Per volume, cloth, \$6.00 net. Vol. II. Philadelphia and New York: Lea & Febiger, 1913.

The second volume of this splendid work is quite in keeping with its companion, published a few months ago and reviewed in these columns. The leading American contributors to this volume are S. I. Schwab of St. Louis, Smith Ely Jelliffe, W. J. M. A. Maloney, E. W. Scripture, I. Abrahamson and Louis Casamajor of New York, Frederick Tilney of Brooklyn, R. T. Vaughn and A. E. Halstead of Chicago, Capt. H. J. Nichols, U. S. Army and H. H. Hoppe of Cincinnati. Jelliffe contributes two very helpful papers on the Treatment of Headaches, which conditions he classifies and for which he presents a logical line of treatment, and the Treatment of Syphilitic Diseases of the Nervous System. In the latter paper, Jelliffe advises mercury-salvarsan treatment, "when economics do not enter into the question." He is very favorable to Swift's intraspinal salvarsan therapy and especially recommends the drug in tabes. Capt. Nichols adds his testimony to the value of salvarsan in tabes, but thinks it disappointing in paresis. Antitoxin treatment is accomplishing wonders in cerebro-spinal meningitis, says Maloney. He estimates it lessens mortality by from 25 to 50 per cent.

The book is full of interesting and clinically valuable articles, on such subjects as the Neuralgias and Neuritis, Injuries of the Peripheral Nerves, Muscular

(Continued on p. 22.)

THERAPEUTIC MEMORANDA.

Nonpoisonous Anesthesia of Mucous Membranes.

—Joachim states that "we now possess agents for the production of local anesthetic effects which are far less poisonous than cocain, and equally as efficient." (*New Orleans Med. & Surg. Journal*, Oct., 1912). If we inject, for instance, in the removal of both tonsils, 5 c.c. of a cocain solution, we have reached the maximal dose, and a larger quantity than this will often have to be used for effective anesthesia. This brings one very near to the danger line, but he finds that we can use a Novocain adrenalin solution of even double the strength and several times in quantity with perfect impunity. In submucous resections of the septum, Joachim adds 15 drops of 1:1000 adrenalin solution to 4 drams of a 2% Novocain solution and this is sufficient to produce, if properly injected, a painless and bloodless field for operation. He quotes Braun as saying that "in the relative toxicity of cocain and Novocain he found the latter to possess only 1/10 the toxicity of cocain. The possibility of using without danger a large quantity of a solution producing an effective anesthesia, has in a measure widened the field of our activity in the nose, throat, and about the ear, and enabled us to undertake operative procedures which we could not do with the same degree of thoroughness, nor with the same freedom from pain and distress to the patient, unless we employ dangerously large doses of cocain solution or resort to general anesthesia."

Means and Methods of Reducing the Death Rate from Surgical Operations.—Marshall Clinton, of Buffalo, in a paper on "Means and Methods of Reducing

the Death Rate from Surgical Operations" (*N. Y. State Journal of Medicine*, April, 1913), advocates the use of Crile's anociassociation (for blocking off the operative field with Novocain). He concludes an instructive paper: "If a patient has no fear of the operation, feels no pain from the operation, or better, has no pain impulses sent to his brain, takes an odorless anesthetic which does not keep him nauseated, and loses no blood, he cannot develop shock. To properly carry out these details requires care, time, and tact. If successful, we notice an absence of shock. The time ought to come when we feel that no surgical procedure can be held immediately responsible for a patient's death. These are the simple means and methods of attaining that end."

Regional Anesthesia.—Chas. H. Frazier contributed to *Progressive Medicine*, Vol. XV, No. 1, a comprehensive study of regional anesthesia in the trigeminal territory, and comments on the "increasing use of local as a substitute for general anesthesia." He describes Braun's form of anesthetizing for operations on the frontal sinus and for carcinoma of the nose and tongue, resection of the upper jaw, removal of the floor of the mouth and tonsils, and operations on the gasserian ganglion. The anesthetic agent used is Novocain. The nerve is first blocked by injecting the special branch or branches involved with 5 c.c. of a 1% solution of Novocain-Suprarenin, and the external site of the operation is also anesthetized by a 1/2% solution. Frazier also quotes Haertel and Krause, who are using Novocain-Suprarenin for similar conditions.—Farbwerke-Hoechst Co., New York.

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Electricity in Diseases of the Eye, Ear, Nose and Throat. By W. Franklin Coleman, M.D., M.R.C.S., Eng., ex-President and Professor of Ophthalmology in the Post-Graduate Medical School of Chicago; Professor of Ophthalmology in the Illinois School of Electro-Therapeutics, Chicago, etc. Cloth. Pp. 595. The Courier-Herald Press, 1912.

The paucity of literature on medical electricity, and the author's gratifying achievements in this branch of practice, have induced Dr. Coleman to bring out an up-to-date work on the subject. One feature of the book will be especially appreciated by physicians: its very practical character, which makes it a helpful handbook in everyday practice, an assistant that is always replete with information and suggestions for the most successful application of electricity in diseases of the eye, ear, nose and throat.

On page 49 the author says it is his purpose "to call attention to the prevailing types of electro-therapeutic apparatus in general use, rather than to advertise the product of any particular manufacturer." This is a wise declaration, for some captious critics attribute mercenary motives to authors who give comprehensive descriptions and illustrations of the best devices with which they are familiar. In response to many inquiries, Dr. Coleman gives a brief description (p. 81) of the apparatus which he personally employs. On page 89, he deprecates short treatments at long intervals, and recommends daily treatments, so as to produce a continuous effect. Dr. Coleman possesses a remarkable ability for assimilating a vast amount of information and abbreviating it for his readers, as is attested by his immense bibliography; the nestor of the medical profession in Chicago, he is a pioneer in the application of the sinusoidal current to diseases of the eye and ear, and his researches and experiments in this line are of especial interest and value (pp. 122-124).

The clinical character of this book will appeal to the average practitioner, for the author has marshalled a host of cases to illustrate the many methods of which he treats. Every physician who wants the most authoritative information on the live subject of electro-therapeutics from its oldest living exponent will want this book.

The Psychoneuroses and Their Treatment by Psychotherapy. By Prof. J. Dejerim and Dr. E. Gauckler of Paris. Translated by Smith Ely Jelliffe, M.D., of the New York Post-Graduate Medical School. Cloth. 400 pages. Price, \$4.00 net. Philadelphia and London: J. B. Lippincott Company. 1913.

The translator has performed a real service by giving us a volume dealing with the functional neuroses, phobias, nervousness, neurasthenia, hysteria and fixed ideas which have always been neglected by scientific investigators in the field of neuropsychiatry. These authors have realized the necessity of entering the psychic realm for the purpose of laying bare the emotional factors which can be found in all mental ailments.

The book abounds in practical applications of these ideas to concrete cases and its careful study will speedily convince the physician of its great value in solving some of the problems which have proven enigmatical.

BOOKS RECEIVED.

All books received will be acknowledged in this column, and those which warrant further notice will be given a more extended review in a later issue.

An Elementary Study of the Brain. By Eben W. Fiske, M. D. Cloth. 132 pages. Illustrated. Price, \$1.25 net. Published in 1913 by the Macmillan Company, New York.

A Laboratory Manual of Invertebrate Zoology. By Gilman A. Drew, Ph.D., Assistant Director of the Marine Biological Laboratory, Woods Hole, Mass. With the aid of present and former members of the Zoological staff of instructors at the Marine Biological Laboratory, Woods Hole, Mass. Second Edition. 12mo of 213 pages. Cloth, \$1.25 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Obstetrics for Nurses. By Joseph B. DeLee, M. D., Professor of Obstetrics in the Northwestern University Medical School, Chicago. New (4th) Edition. 12mo of 508 pages, fully illustrated. Cloth, \$2.50 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Labyrinth Paper. By George W. MacKenzie, M. D., of Philadelphia, with a foreword by Prof. Gustav Alexander of the Vienna Polyclinic. Cloth. 222 pages. Illustrated. Published in 1913 by the author.

A Clinical Manual of Mental Diseases. By Frances X. Dercum, M.D., Ph.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia. Octavo of 425 pages. Cloth, \$3.00 net. Published in 1913 by W. B. Saunders Company, Philadelphia and London.

Report of the New York City Board of Health for the year 1910 and 1911. Cloth. 200 pages. Published in 1912 by the City of New York. A vast amount of interesting information can be found in Dr. Lederle's report.

American Proctology.

Many interesting papers were read at the recent meeting of the American Proctologic Association. A few abstracts are appended.

Fecal Tumor Associated With Hirschsprung's Disease.

Alois B. Graham of Indianapolis reported a case in a young French woman, aged 27, who had undergone three abdominal operations for Hirschsprung's disease, or megacolon. It was not unusual for her to go ten days without a stool, and then evacuation was produced only by means of enemata.

At the age of 12 her condition was diagnosed as one of pregnancy, on account of the vomiting and the appearance of the abdomen.

At the age of 19 she suffered an attack of complete intestinal obstruction. A large fecal tumor was removed from the sigmoid. Six months later she was operated for post-operative adhesions. No resection of the bowel or short-circuiting operation was performed.

At the age of 25 she suffered an attack of complete intestinal obstruction, and a large fecal tumor was removed.

August, 1912, she presented symptoms of complete intestinal obstruction. She had been absolutely constipated for seven days. The tumor, a

(Continued on p. 27.)



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Laryngology and Rhinology.....	Dr. Stewart	4:00 P.M.
Oral Surgery.....	Dr. Shea	4:30 P.M.
TUESDAYS.		
Neurological Hospital—		
Neurology	Dr. Byrne	9:00 A.M.
Cumberland Street Hospital (Brooklyn)—		
Ophthalmology and Otology.....	Dr. Lloyd	2:00 P.M.
Surgery	Dr. Ritch	2:30 P.M.
Kings County Hospital (Brooklyn)—		
Surgery	Dr. Bogart	8:30 A.M.
Genitourinary Surgery.....	Dr. Morton	2:00 P.M.
Genitourinary Surgery.....	Dr. Fraser	2:00 P.M.
Coney Island Hospital—		
Surgery	Drs. Fisk and Bogart	10:30 A.M.
	Drs. Murphy and Lack	10:30 A.M.
Medicine	Drs. Hall and Nash	3:30 P.M.
	Drs. Hegeman and Byington	3:30 P.M.
WEDNESDAYS.		
City Hospital—		
Genitourinary Surgery.....	Dr. Greene	2:00 P.M.
Obstetrics	Dr. Shears	2:00 P.M.
Neurological Hospital—		
Neurology	Dr. Maloney	10:00 A.M.
Cumberland Street Hospital (Brooklyn)—		
Gynecology	Dr. Pierson	2:30 P.M.
Kings County Hospital (Brooklyn)—		
Dermatology	Dr. Winfield	1:00 P.M.
Orthopedics	Dr. Truslow	9:00 A.M.
Orthopedics	Dr. Napier	2:00 P.M.
Coney Island Hospital—		
Pediatrics	Drs. Beck and McQuillan	3:30 P.M.

Pediatrics	Drs. Pendleton and Van Wart	3:30 P.M.
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THURSDAYS.

City Hospital—		
Gynecology	Dr. Child	2:00 P.M.
Dermatology	Dr. Gottheil	3:00 P.M.
Cumberland Street Hospital (Brooklyn)—		
Surgery	Dr. Ritch	2:30 P.M.
Laryngology and Rhinology.....	Dr. Stewart	4:00 P.M.
Kings County Hospital (Brooklyn)—		
Surgery	Dr. Bogart	8:30 A.M.
Otology	Dr. Alderton	1:00 P.M.
Coney Island Hospital—		
Gynecology	Drs. McEvitt and Mills	10:30 A.M.
Gynecology	Drs. Mayne and Rankin	10:30 A.M.
Surgery	Drs. Fiske and Bogart	3:00 P.M.
	Drs. Murphy and Lack	3:00 P.M.

FRIDAYS.

City Hospital—		
Laryngology and Rhinology.....	Dr. Dougherty ..	2:30 P.M.
Neurological Hospital—		
Neurology	Dr. Abrahamson ..	9:00 A.M.
Cumberland Street Hospital (Brooklyn)—		
Ophthalmology and Otology.....	Dr. Lloyd	2:00 P.M.
Surgery	Dr. Pallister	2:30 P.M.
Surgery, Oral.....	Dr. Shea	4:30 P.M.

SATURDAYS.

Neurological Hospital—		
Neurology	Dr. Walsh	2:00 P.M.
Kings County Hospital (Brooklyn)—		
Surgery	Dr. Bogart	8:30 A.M.
Gynecology	Dr. McNamara ..	1:30 P.M.

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fecal mass, did not pit on pressure, but could be easily moved in every direction. Vomiting was persistent, pulse 120, temperature 101 F. A fecal tumor in sigmoid, with its greatest circumference 19¾ inches and weight of 64 ounces, was removed.

Patient made an uneventful recovery. In April, 1913, the patient went to Chicago, suffered another attack of intestinal obstruction, was operated there April 19, 1913, and died three days later.

Deductions Based on an Analysis of 3,000 Rectal Cases.

T. Hill of Boston tabulated 3,000 consecutive rectal cases to furnish data as to the relative frequency of the various affections of the rectum and colon. There was a total of 1,120 operations performed in this series. It was found that rectal ailments were more common among males than females, the ratio being three to two. Hemorrhoids formed 41 per cent. of the total. Next in frequency were abscesses and fistulae, 18 per cent., and the remaining disorders were pruritus ani, 8 per cent.; anal fissure, 10 per cent.; colitis, 6 per cent.; prolapsus ani and proidentia recti, 3.7 per cent.; cancer of the rectum and sigmoid, 2 per cent.; benign growths, 1.5 per cent.; stricture, 1.5 per cent.; syphilis, 2 per cent.; constipation, 2.8 per cent. Other miscellaneous conditions were recorded which made up but a fraction of 1 per cent.

The Ano-Rectal Line.—Its Clinical Significance.

Collier F. Martin of Philadelphia stated that the ano rectal line, or dentate border, has a very important clinical significance, in that it is the point at which both the blood supply and the nerve supply become differentiated. Above it the blood is carried by the portal circulation to the liver, while below it the blood stream mingles with the general circulation by way of the inferior vena cava. Above it the rectum is supplied only with visceral or sympathetic nerve fibers, while below it the anus and its surrounding structures are supplied with spinal nerves and by sympathetic filaments. These spinal nerves carry sensory impulses common to nerves having specialized cutaneous nerve-endings.

Below the ano rectal line, as evidence of irritation of the spinal innervation, sensory disturbances are expressed in terms of pain, itching, formication, and in alterations in spinal sense of touch and temperature, with their modifications such as dryness and moisture. Stimuli producing these sensory disturbances show their presence by exciting motor contraction or by inducing alterations in secretion.

Above the ano rectal line all of the specialized spinal sensations are absent, only the visceral sensations being present. In the rectum it is only pressure and muscle-sense that appeal to our consciousness. This sensation is translated in the brain into a desire for stool, which desire is inhibited or assisted voluntarily, as occasion may require. Excessive spasm of the involuntary muscles supplied by visceral nerves produces an unpleasant sensation, which differs from pain of spinal origin in that it is difficult to localize, and may be described more as an ache, which is difficult to bear and exhausting to the patient. Lesions of the crypts of Morgagni, since they involve both the visceral nerve supply of the rectum and the spinal innervation of the anus,



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are associated with many disturbances of the reflexes.

Infection and malignant processes occurring above the dentate border tend to spread upwards by way of the deep lymphatics to the pelvic or uro-genital organs, or to the liver via the portal system. Below the ano rectal line superficial abscesses result from infections of the proctodeum and the rectal crypts. Malignancy here is associated frequently with extension to the inguinal glands. In general, there is a marked tendency for pathologic processes to limit their invasion to the embryonic structure in which they began; the ano rectal line being the "great divide" between the ectodermic and the endodermic structures. Rectal infection and malignancy rarely extend below the dentate border, while anal pathology usually remains below this line and the levator ani muscles.

Comparative Mortality of Married and Single Persons.

The married man is supervised for his own good, and having added incentives to self-restraint and to the care of his health, he has a lower mortality than the bachelor. The old pleasantry which alleged that married men did not live any longer than bachelors, but that life only *seemed* longer to them, is negated by the statistics of the federal Census Bureau and the State Department of Health of New York, which have been worked out by Walter F. Willcox of Cornell University. Thus it appears that from 20 to 30 the death-rate among married men is 4.2, while among single men it is 6.6. From 30 to 40 the death-rate among the married men is slightly under 6, while among single men it is nearly 13. From 40 to 50 there is an even greater difference. The death-rate among married men is 9.5, whereas among single men it is 19.5. From 50 to 60 there is less divergence in the death-rates, but there is a difference in favor of the married men of nearly 11 deaths per year per thousand. Even from 60 to 70 the death-rate of married men is less than 32, while that of the single men is 51. The mortality rate among widow-

ers and the divorced is at least nearly and sometimes double that of married men of the same age, so that if husbands lose their wives they lose much of the chance of longevity which marriage secured them; and in general the younger they are the more they lose. The death-rate among the men who have lost their wives is even higher as a rule than that of the bachelors of the same age. Among women the differences in the death-rates between married and single are not so striking.—(*Jour. A. M. A.*, July 19, 1913.)

Comfortable Catharsis.

As a rule, the more efficient the cathartic, the greater the discomfort to the user. The griping and nausea following the older cathartic pills and fluid preparations, are well known and need no one to bring the pictures before the mind. In Prunoids, however, we have an exceedingly pleasant remedy that is as surely effective, as it is devoid of unpleasant effect when its action has been secured. The removal of intestinal obstruction after excessive eating, or from sluggish, incompetent peristaltic action of the bowels, is one of the delightful and prompt offices of Prunoids. The cathartic action is secured in six or eight hours, and the evacuations are not only remarkably complete but entirely painless. The feeling of relief and comfort is pronounced and there being no unpleasant after-effects, patients welcome the remedy with decided satisfaction. There is usually a slight but decided aperient action following the cathartic action, which lasts several days, but tends to promote permanent regularity in the movements from most bowels. This is somewhat different from most cathartic or laxative remedies, and is a prominent reason for the popularity of Prunoids with physicians and their patients who have used the remedy. Samples will be sent to any physician unacquainted with Prunoids, by applying to the Sultan Drug Company, St. Louis, Mo.

Utensils which must be prepared hastily for an emergency can be sterilized by coating them with alcohol, which is then ignited and allowed to burn itself out.